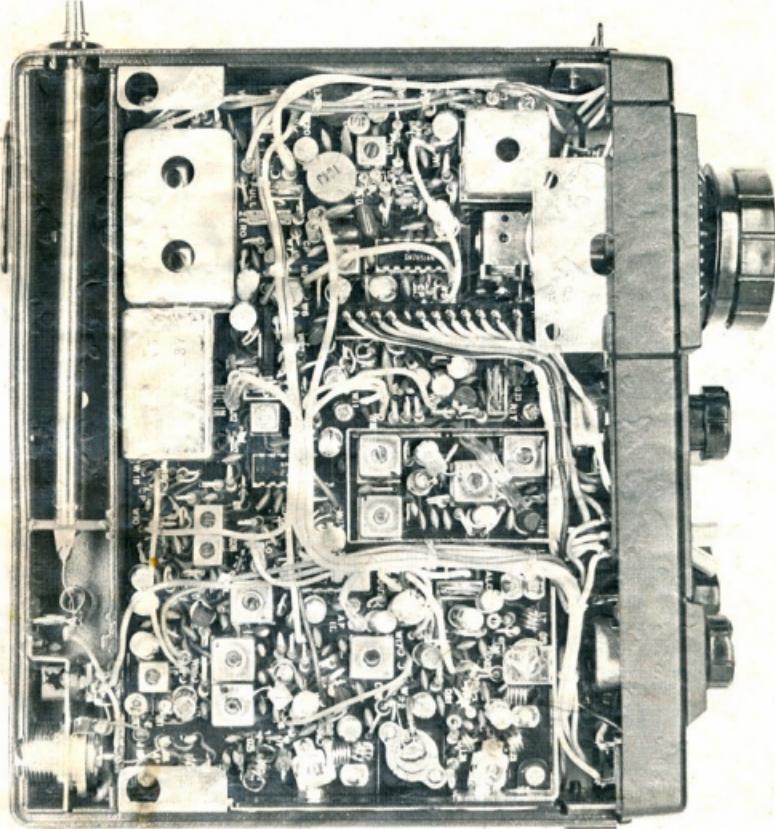


amateur radio



VOL. 44, No. 1

JANUARY 1976

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COVER PHOTO

A close-up of the "work's" of the popular new 2 metre sideband rig, the IC-202.

Photo: Ken Reynolds VK3YCY

amateur radio

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During 1975 meetings took place of two of the three IARU regional organisations. Region 2 will be meeting in April.

A major subject discussed was the World Administrative Radio Conference scheduled for 1979 some details of which are included in Executive's WIANews this month.

In the light of the report of the IARU delegate to the WARC (Space Conference) 1971 the Region 3 Association was unanimous in its decision to finance a delegate from the region to be part of the IARU delegation to WARC 1979 at Geneva.

At the 1975 Federal Convention the WIA resolved to press for an amateur to be accredited to the Australian delegation for WARC 1979 as was the case with the late John Moyle VK2JU, for WARC 1959.

Discussions have already taken place with the Secretary of the PMG's Department putting the WIA position. We were assured that we will be brought into discussions affecting amateur matters. The question of the accreditation of a delegate is also receiving consideration.

What are likely to be the pressures at WARC 1979?

It has been estimated that the increasing use of satellites for point to point fixed services could reduce some of the pressures in the HF parts of the spectrum. With this in mind a world-wide logical expansion of amateur HF bands has been planned to accommodate the anticipated increase in the amateur population, bearing in mind that the decisions taken in WARC 1979 might well go through into the next century.

However, the VHF/UHF/SHF parts of the spectrum are likely to experience the greatest pressures as the various services adjust to increased requirements. Amateurs must also look to the future and be ruthlessly realistic in their anticipated requirements. At the same time it is essential for amateurs to bear in mind for WARC 1979 the development of new techniques and to plan accordingly.

To this end the VHF Advisory Committee has been preparing band plans and other data for the Institute's use. Please give the band plans your greatest support. Much thought, time and energy have gone into their preparation. They directly affect part of the negotiations going on between the Institute and the Frequency Management Branch of the PMG's Department.

Yet another important part of our activities must be devoted to EMC matters. It has long been the Institute's firm belief that the inadequacies of one service should not prevent the full utilisation of the frequencies allocated to a properly operated adjacent service. This is part of the name of the game relating to the 50-52 MHz area and the "misallocation" of the Channel 5A frequency.

On a broader basis this is the name of the game for internationally-agreed allocations in the VHF and higher regions of the spectrum.

D. A. WARDLAW, VK3ADW,
Federal President.

PROVOCATION OF THE MONTH

Amateurs are the worst communicators.

1976 SUBSCRIPTION NOTICES

All members should have received their 1976 Subscription Notices by now. Please observe the "First and Final Notice" over-stamping in red ink and accept this QSP as a reminder if you have not already paid. The cessation of AR is done automatically for unfinancials and free replacement of missing issues cannot be undertaken — with regret, because of the costs involved. If you are an active amateur debating the value of the Institute, contemplate what could happen to amateur radio at WARC 1979 without a strong healthy amateur lobby coupled with what can only be described as costly and protracted preparatory work by your Institute in collaboration with IARU.

VICTORIAN DIVISION COMPONENTS SECTION

Advice from the Victorian Division is that their Components Section will close on 15th December and re-open from 30th January.

LDTV

CO-TV, for Aug. '75, the journal of the British Amateur Television Club advised the formation of a new Association for Low Definition Television at a meeting in April 1975. In the comments was a

paragraph, "Tribute was paid to the energy and enthusiasm of C. J. Long, the young Australian LDTV worker who provided enormous practical help, and collaborated in establishing the first trans-world LDTV tape-link".

SATELLITES

In the Telecommunication Journal there is a regular report of new satellite launchings — almost one weekly. Since the USSR Satellite 13th Molniya-2 (International number 1975-83A) launched 8th July listed as carrying apparatus for transmitting television programmes and multi-channel radio communication, orientation system, orbit correction system and power supplies. The transmission frequencies are shown as 3.4 to 3.9 MHz!!

GILBERT & ELICE ISLANDS

Information has been received via IARU R3 Secretary from the Secretary of the Minister of Communications and Utilities P.O. Box 487, Suva, Fiji, that the G. & E. Islands that from 1-1-76 the present Colony will be divided into two separate territories having U.K. Crown Colony status. The new Gilbert Islands Crown Colony will comprise the Gilbert Islands and Ocean Island: VR1, the Phoenix Islands: VR1P, Northern Line Islands: VR3, Central

WIANEWS

A letter has been received from the Secretary of the PMG's Dept. advising that at the 30th Session of the Administrative Council of the ITU held during June 1975 the Council had an exchange of views by Administrations on the holding of a WARC to review, and where necessary, revise the Radio Regulations and Additional Radio Regulations. The Council envisaged that this Conference would take place in the second half of 1979 for a duration of about 10 weeks.

The Secretary went on to say it is anticipated that a Preparatory Group will be formed in due course to formulate Australian requirements and attitude prior to compilation of an Australian Brief for the work of the Conference.

Readers of WIANEWS in December AR will be aware that the Executive have already begun work on this most important matter affecting every amateur. A number of policies directly relating to WARC 1979 deriving from the IARU R3 Conference in Hong Kong last March were adopted at the 1975 Federal Convention. Please see AR June 1975 page 28 onwards.

The November Exams were once again not held because of the continuing industrial dispute. At the time of writing this in November, Executive has decided that certain negotiations going on behind the scenes at present should be given a fair hearing. If nothing positive happens before the new year passes out of its

and Southern Line Islands: VR7. The Crown Colony of Tuvalu (not the Tuvalu Islands) will consist of what are known now as the Ellice Islands and will use the new prefix VR8. Each of the new Crown Colonies will have its own separate Administration, stamps, etc.

ASCII

'FCC has granted special temporary authority for experimental use of the light-level American Standard Code for Information Interchange (ASCII) by amateurs communicating through Amsat Oscars 6 and 7 for the period ending February 28, 1976'. QST, Oct., '75.

1976 SUBSCRIPTIONS REMINDER

No final notices will be sent out this year from the Executive Office.

All subscription notices already mailed carry the wording —

"FIRST AND FINAL NOTICE"

Please take note and arrange to pay your 1976 subscription at once if you have not already done so.

AR's will soon cease for unfinancials and missing copies cannot be supplied if your supply ceased because of being unfinancial.

PLEASE TAKE NOTICE.

AWARDS

The Publications Committee have pleasure in advising the following Awards granted for the year 1975—
Higginbotham Award — Mr. Jim Payne VK3AZT.

Technical Award — Mr. H. L. Hepburn VK3AFQ for the series on "Amateur Building Blocks".

infancy there is little doubt that consideration will be essential to determine suitable strong action based on developments to that date. The Executive is extremely disturbed about the way this matter has been prolonged so long by the authorities and others.

Unless the examinations are held Novice Licensing will never get off the ground. Through no fault of the Institute this Novice Licensing has been subjected to a delay of over 3 years already. Also the other amateur exams suffered severely during 1975.

It seems we are not the only people suffering under such a handicap. The editorial in Oct. '75 QST looks familiar, thus — "In recent months it hasn't been unusual for a Novice application to take six months to progress from the code test to the actual licence. If you add to that the time it takes to introduce someone to amateur radio in the first place and for him to learn the code, it turns out that a student whose interest is sparked at the beginning of school year in September will be lucky to be on the air when school lets out the following June". In this case however the cause was an avalanche of CB and other mail.

Talking about mails. A parcel of books from ARRL postmarked 23rd May arrived on 5th November. An exceptional case perhaps.

What will this new year 1976 bring forth? Hopefully a much more productive and harmonious year for amateur radio than 1975.

Finally a correspondent kindly pointed out that RAA-RZ7Z call sign blocks referred to in Nov. '75 WIANEWS actually belonged to the U.S.S.R. He is correct but perhaps all repeater and beacon users related these to suffix blocks and not prefix blocks. The RAA in this context really means VKxRAA where "x" is the State numeral. ■

"DO YOU REMEMBER?" — Original Poem by Alan Shawsmith VK4SS

When planet Earth stole quietly on, silent as before.
— Instead of now, emitting loud, a man-made RF roar.

When rigs were made of bakelite, busbar, breadboard and brass.
— Instead there's "little boxes". Ah, what has come to pass!

When IP charts did not exist: no MUF, no checks
To choose a band or pick a time for optimum DX.

And when a country was a country — about one hundred plus.
Now they're made to suit the 'scene', for the likes of Don and Gus.

When 'duck talk' no ears assailed; AM was the thing.
The whole fone band from end to end with heterodyne did ring.

Then DX was no 'rat race', but a sharing round with all.
Every OM called to say 'FB', if you too made the 'call'.

When twenty five or fifty watts was really something big
And DXCC often made with an AM half filled sig.

When thoughts of beams and fixed arrays had not been given birth.
Now like a winter forest, they're spread across the earth.

When keys were hand and by their 'fists', op's you'd quickly name.
Now with keyers, boards and 'bugs', 'fists' sadly sound the same.

When no such 'bug' as TVI, the avid Ham oppressed
With band-pass filters, suppresses, traps — and all the rest.

When DX stations were so rare, they seemed so far away.
Now in a global city, they're commonplace each day.

'S'max in '58 were signs from Top to ten,
With ole Sol two hundred plus; when will that come again?

If you remember all those things, then count yourself a sage.
You've seen the birth and growth of Hamdom — through its GOLDEN AGE.

FURTHER MODIFICATIONS TO THE FT101B

In a previous article (AR March 1975, p.8) I described three modifications to the FT-101B. The following are further modifications I have made since then which have proved well worthwhile.

Modification 4

RF OUTPUT SOCKET

Using the FT-101B extensively on VHF with an external transverter the low level RF output socket gets a great deal of handling. After a while it was found that the level of 28 MHz signal to the transverter was varying, now and again cutting out completely. This problem was traced to a faulty phono type connector used as the low level output socket. Examination of the insulation showed what appears to be a cardboard material and the connection was far from positive when any strain was placed on the cable. The peak power level at this point is about 500 mW so any loss of signal will drastically affect the performance of the transverter. The phono type connector was replaced with a BNC type connector and since then no further problems have been experienced.

Although this may appear to be a very simple modification there are a number of mechanical problems which have to be watched closely.

I went about the modification as follows: After removing the bottom cover plate of the transceiver and the inner cover under the 6JSCs, the low level socket and the 10 pF capacitor connecting with the grid of one 6JSC can be found in one corner of the chassis. At this point I removed the valves and also the internal speaker as subsequent operations might endanger them.

After unsoldering the 10 pF capacitor the phono socket is unscrewed and removed. This may prove a little tricky and care must be taken not to scratch the case. If you do not mind the extra work involved the outer case can be taken off but this then makes handling the FT-101B difficult as the various parts have little protection and further damage may occur unless great care is taken.

The hole used for the phono socket is smaller than the $\frac{3}{8}$ inch hole required for the BNC connector. Some method must be found to enlarge it without undue vibration which may damage other components of the transceiver or its alignment. As the 6JSC sockets are too close to the hole there is no chance of using a taper reamer without removing not only the sockets but other surrounding components as well. I decided to drill out the hole a drill size at a time using a SCR speed control to keep the speed of the drill as low as possible.

Before starting each drill in the hole I

used a hand held countersinking bit to taper the edge of the hole. It may take two people to do the drilling as the drill and the transceiver must both be held firmly during the process. The reason for removing the internal speaker now becomes obvious of course, as even with the greatest of care metal chips will otherwise find their way towards the speaker magnet!

When the hole is drilled and cleaned up it is a very good idea to go over the surrounding area with the nozzle of a vacuum cleaner to remove any stray chips which may cause shorts or other damage. The BNC connector was then fitted with a lock washer and nut on the inside of the chassis and tightened by placing a BNC plug on the socket and using heavy slip joint pliers with a thick piece of material in the jaws to tighten the plug. The material (felt etc.) prevents the jaws damaging the knurled ring on the plug and with care a very tight connection can be made between the socket and the chassis. When this is finished the 10 pF capacitor can be replaced and the other components returned to their respective positions. Despite the rather awkward nature of this modification the results were well worth the effort.

Modification 5 PILOT LAMP VOLTAGE

After a period of operation I found the pilot lamps seemed to have a very short life, especially the miniature lamp with flying leads used to illuminate the O-100 kHz ring on the tuning knob of the VFO. Unlike the other lamps this one is quite difficult to replace as anyone who has had one of these will know! I decided to lower the lamp voltage and fortunately all three are supplied from a common lead terminating at the bayonet socket above the VFO dial.

The lead from the 13.5V rail was cut at this point and a 3.9 ohm 1 watt resistor connected in series with the lamps. This lowered the voltage to about 12V and the lamp life is now more reasonable. A three-tag strip was mounted under a screw on the front top edge of the shield plate supporting the balanced modulator board and after fixing the resistor to the strip a short lead was run to the socket where the lead from the 13.5V rail previously terminated.

It should be pointed out here that when mounting the tag strip make sure that the various surrounding boards can still be withdrawn if required.

Modification 6 ACTIVE MICROPHONE SUPPLY

Reference to the circuit diagram will show that pin 4 on the microphone socket is unused. I had another microphone with an inbuilt preamplifier operating from 12V and decided to use pin 4 to bring out the necessary supply from the transceiver. The cord on the microphone is a four wire type

Geoff Wilson VK3AMK
7 Norman Ave., Frankston, Vic. 3199

with leads for mic, PTT, common earth, and the 12V line.

Firstly a 1K resistor was connected from pin 5 to pin 2 of the octal socket used for the external VFO. Pin 5 is the 13.5V rail, while pin 2 is not used for the VFO and provided a handy mounting point. The idea of using the 1K resistor (which due to the very low current drain of the preamplifier has little effect upon the voltage) was to isolate the external circuit from the transceiver supply in case a short circuit occurred either at the microphone socket or externally. In such circumstances no damage can result from accidental shorts.

A length of hookup wire was then run from pin 2 of the octal socket to pin 4 of the microphone socket around the inside of the case. The hookup wire was run through a length of spaghetti tubing which served two purposes. Firstly it protected the lead from self tapping screws in the case at various points and due to the stiffness of the tubing could be unsupported over some of its length. Where possible it was tied to other wiring with fine string and secured to prevent it moving.

At pin 4 on the microphone socket a 0.01 uF 50V ceramic was added to prevent RF getting back into the transceiver via the microphone cord. Doubtless there are other spots where a 13.5V supply could be found closer to the microphone socket but the octal socket for the VFO is both easy to get at and provides a ready made mounting point for the resistor.

Modification 7 RF SENSITIVITY

No originality whatever is claimed for this one as several others are already using this idea. If the receiver is a little deaf and it uses a 3SK4QM in the RF stage, the addition of a 100 K resistor in parallel with R5 on PB-1: 1B may help. This gives R5 an effective value of 50 K but I would not suggest going any lower than this.

Strong local signals may tend to overload and some experimenting with values to give an effective resistance between 50 K and 100 K may be best. I have had good results, especially with VHF converters, using this mod.

USE OF LINEARS

The following modifications, although not made to the FT-101 itself, may be of interest to the many owners of these units using them with external linears such as the FL-1000, FL-2000 etc.

The first linear I used was the FL-1000 and this had one problem. When operating on 40 or 80 metres often the linear was not required but there was no way of breaking the relay control line other than removing the accessory plug from the FT-101 or turning off the FL-1000 at the mains switch. When only a brief contact was being made without the linear this was inconvenient. By

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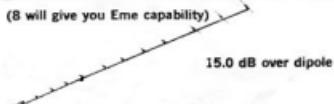
- KLM's 20 METER 5 ELEMENT "BIG STICK"
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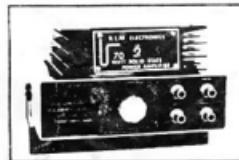
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substituting a switch pot for the relative output pot and running the active return lead for the relay control through this switch it was possible to break the relay line from the front panel control without adding an additional switch to the front panel. Later Yaesu linears overcame this deficiency by adding an Operate/Standby switch.

Even with the above modification added, or where it is a standard feature, another problem can still occur. If the linear is switched off at the power switch, but the

Operate/Standby switch is not in the Standby position, the linear relay will operate as soon as the transceiver PTT switch operates. This is due to the charge held by the capacitor in the relay/bias supply being sufficient to operate the relay. Of course the relay will drop out almost immediately as the relay discharges the capacitor.

I have often found sufficient charge in the capacitor to close the relay even though the linear may not have been used for several days. A very simple solution to

this problem can be made in a few minutes. Add a 12 K 1/2 W resistor across the relay supply electrolytic. This value was chosen as it is high enough to have no practical effect on the operating voltage to the relay (remember that this is also the bias voltage in Yaesu units) but will discharge the electro within about two minutes of the power supply being turned off. After this time if the transceiver operates in the transmit mode the linear relay will not go "clunk" even if the Operate/Standby switch has been left on. ■

THE POOCH WHO MADE THE HAM SHACK HER KENNEL

Alan Shawsmith VK4SS
West End, Brisbane 4101

A million years ago when man and dog roamed the savannahs in the struggle for survival they found the need for each other. We are now mostly urbanised but the bond between man and his best friend remains as strong as ever. I've been lucky to have had a smart dog at my side all my life. Let me tell you of the last one.

Six years ago, there was a knock on the back door. The little girl from across the way stood holding a wriggling bundle of jet black fur. "Mummy says would you like a puppy. She's a girl dog the . . .", she murmured apologetically.

Since losing my last treasured hound, I swore 'no more dogs'. But, as two dark chocolate eyes stared at me from under short drop-down ears, the resolution just faded away.

It turned out to be a case of mutual love at first sight and the relationship developed far beyond my expectations. The family named her MARTI: a Kelpie, black Collie cross, she grew to medium size — about knee-high — and was strong, energetic and intelligent. Like a woman's hair, her coat was her crowning glory — shiny, thick and black and wavy. Right from the start she was responsive to my obedience instruction — except for one thing — her sleeping quarters.

I built a roomy kennel. She disdained it utterly. Several other places were tried: no go. She had already picked her own spot . . . under the shack divan. This was fine by me but it did present the occasional problem of having to leave the room unlocked. Also the YF complained that the corner was a little 'doggy' at times.

In retrospect I'm now quite certain the Ham Shack had some special significance for her, but the affinity was never solved. Maybe it was the only place in which she felt safe and secure — or was it just my company. Perhaps she was tuned in some way to that cacophony of sound emanating from the rig: it could be that 'imprinting' occurred when she was a very young pup. As long as I stayed DXing or camped on the divan, she stayed too. However, if I went to the typewriter to work, she usually got up and left.

Certain regular habits grew into our relationship. I am an insomniac who sleeps fitfully after midnight, so DXing was the natural solution: but as Marti grew, I found she took over the role of an alarm clock. Somewhere around 2 a.m., my legs through the bed covers would be bunted and nosed. If I was slow to respond a couple of slobbery licks across the face would bring me to consciousness. Next we raided the frieg together. She would sit in the beg position and share my snack. Then it was off to the shack where she'd scramble under the divan, turn herself around so as to view the scene — and wait.

Being a CW man, DXing was mostly done in silence but when good one was shared, I'd share it. "How about that, old girl, 599 from a 9Q5 on 3.5". The response was several thumps of the tail onto the floor from under the bed.

In aural acuteness and discernment, Marti was as sharp as a tack. Teaching her to respond to her name in code, as has been done elsewhere with hi-Q dogs, would have been a piece of cake. I simply never thought to try it.

Visitors to the shack were quietly growled at, until I gave her the nod, whereupon she emerged and extended a paw in the best Ham spirit of welcome and friendship.

Marti had one great joy and passion — playing soccer with the local kids. In the same manner a sheep dog can pen recalcitrant sheep, so Marti could nose, bunt and swerve a soccer ball around half a dozen feet into the net, with a speed that would have amazed even Pele. Of course, she changed sides when the fancy took her.

On each Friday, a sports day at the nearby school, she was always missing from home. Finally, a note arrived from the headmaster — 'we all love Marti, but every game is brought to a standstill. I must ask you . . .'

Our relationship came to a sudden and traumatic end. I heard the car zoom past — and the sickening crunch. I heard it speed on. Then my ten year old son was racing down the path, screaming 'Dad, Dad —'

In the prime of her magnificence, we buried Marti at the rear of the allotment,

amid trees and where the grass is lush and where she used to lie panting madly after fun and games: a place that seemed to suit her free-running nature — within sound of the Ham Shack, the kids' play area and the punt of a football.

Now it's mostly work at the 'mill' rather than DXing. But the Shack, shared and warmed for so long by a pooch who helped me make it through the night, can never be the same again. It's not the solitude but the cold touch of loneliness . . . even after a year . . . and when I finally settle on the divan for a pre-dawn doze, I am wont to reach down for that warm, luxurious coat . . . ■

AN OT BRASS POUNDERS LAMENT

by Alan Shawsmith VK4SS

(Adapted from the original poem 'My Key and Me' by F. Burage — Published in 'SPARKS' 1974).

*When I was young I dreamt my dreams;
Made my plans and plotted schemes.*

A W/O I would be.

My key and me.

In lieu of fun and women's looks.

I bought and studied wireless

— and I got my ticket

My key and me.

Intent to visit foreign lands.

Was another of my plans.

With ships from sea to sea.

My key and me.

*But before the strife that turned to war.
I was posted 'on the shore'.*

And did not go to sea.

My key and me.

I met a girl and soon her wed.

So settled down, 'cocked' instead.

No longer was I fancy free.

My key and me.

The children came and grew and went.

And tho' it's been a life well spent.

Duty set the destiny.

Of my key and me.

The years have simply sped away.

But still it seems like yesterday.

A dreamer, young and fancy free.

My key and me.

Too late to muse, 'if only I —'.

Life's winter season is close by.

Now very soon there'll only be.

My key NOT me.

ELIMINATION OF OVERLOAD ON THE FT101B

Arn van der Harst VK5XV
21 Dudley Crescent, Marino, SA 5049

It can be said that the FT-101 has been and still is one of the most popular transceivers available in the Yaesu range. With its many advantages, however, it also has some shortcomings, two of which may be cured easily.

One fault is overload of the second receive mixer resulting in signals, usually high speed teletype signals, which appear on the amateur band but should not be there in the first place. This problem has been fixed by replacing the second receive mixer with a MC 1496 integrated circuit acting as a double balanced mixer.

The second shortcoming, which is easier to recognise, is severe overload on extremely strong signals. It was not until I had the chance to try out the FT-201 that I started to realise what the trouble was. The FT-201, using the same RF amplifier (3SK40M) showed no signs of overload at any stage. Looking at the circuit diagram I found that the AGC system was different and seemed to be much better than the FT-101B. As overload and cross modulation is mostly due to the front-end it was logical to conclude that the AGC voltage range to the RF amplifier was not enough. With the help of John, VK5AV, we devised an AGC amplifier circuit using the very versatile ua 741 op amp.

Referring to Fig. 1 may give you some idea of its operation. R1 adjusts the offset balance of the ua 741 op amp and hence the output of the device as seen at pin 13 of the IF socket. R2 adjusts the overall gain of the op amp and thus the AGC voltage swing between maximum signal input and no signal input.

The output of the op amp goes to pin 9 of the RF socket. An easy way to achieve this is to remove the only wire at pin 13 of the IF socket, which goes to pin 9 of the RF socket, and solder this wire to pin 18 of the IF socket which is an unused pin on all FT-101Bs. Then connect the output of the op amp to pin 18 of the IF socket.

The ua 741 with associated resistors was built on a small piece of matrix board, then sealed. Four wires protrude from it, connected to the appropriate points.

ADJUSTMENTS

Before installing the device measure the AGC voltage at pin 13 of the IF socket under no signal condition on 14.2 MHz. This should be around 7.8 volts measured with a 20000 ohm/volt multimeter. Connect a signal generator at the antenna input and increase the input until there is 4 volts at pin 13 of the IF socket. Disconnect the wire from pin 13 and solder it on pin 18 as described earlier. Connect the device to the appropriate points as indicated on

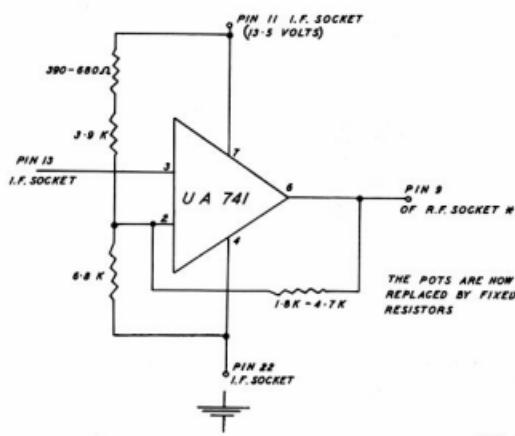
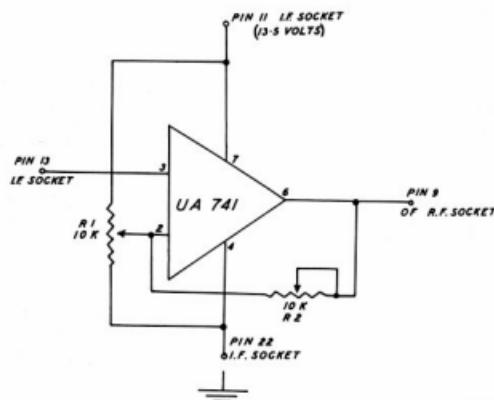


Fig. 1. Set the pre-set pots half way. Switch the set on and measure the AGC voltage again at pin 18 of the IF socket under no signal condition. If different, adjust R1 until the reading is as in its unmodified form. Now re-connect the signal generator which is set at the previously calibrated level. Measure at pin 18 of the

IF socket and adjust R2 until the reading is 2.8 volts. Re-check the AGC voltage at pin 18 under no signal condition and make sure it is the same as in the unmodified condition. These two controls, R1 and R2, do interact a small amount. Fig. 2 will give a guideline of approximate fixed values replacing the pots. Re-calibrate the

S-meter to give S9 at 14.2 MHz. Seal the device and all your overload problems are over.

I would like to thank John VK5AV, and his colleagues for allowing me to pick their brains, and Lloyd VK5QI who with his untiring patience did all on-air tests with me. ■

Try This

with Ron Cook VK3AFW
and Bill Rice VK3ABP

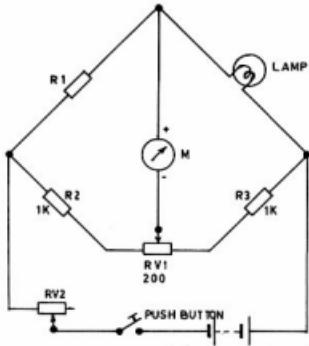
A SENSITIVE VOLTmeter

B. L. McCubbin VK3SO

The sketch shows the circuit of a sensitive voltmeter useful where rechargeable batteries of the "Alkaline" or "Nickel Cadmium" variety are in use.

A low current pea lamp is used as a current sensitive resistor in a conventional Wheatstone bridge circuit.

The value of R1 is chosen to match the resistance of the pea lamp when the filament has a barely visible glow.



THE NOVICE, THE OT, AND THOSE BETWEEN

(Extracts of a Muse by Alan Shawsmith VK4SS)

* * *

New men in a new age propound new ideas to fit and mould the new environment. It cannot be otherwise if AR is to survive and grow. To stand still is in real truth, to decay. This is nature's law of eternal struggle and change — the only constancy.

* * *

But in the midst of NOVICE eagerness and passion to enjoy AR, spare a thought for the OTs who helped make it possible. The Pathfinders who did what couldn't be done — make DX inter-continental. When each CQ and cycle tuned was a new adventure across the vast dimension of the unknown Ionosphere. The gear they used and the routes forged were rough and uncertain but from their lonely outposts has grown a global radio village. Their wisdom and patience, tensiled by experience, is ever needed as much as the unbounded imagination and energy of the young mind.

* * *

Let the powers that be decree, deny: AR, the ionosphere and space near and far are for all those qualified to use it. It is part of our birthright in the same manner as are the oceans, the lands and all therein. (The earth is given as a common for all men to labor and live in" — Thomas Jefferson, "The earth and its resources belong of right to its people". — Gifford Pinchot).

* * *

But while it is our right is also a privilege. A licence extended to those who are skilled and qualified — and every licence carries a responsibility. Our conduct,

NOVICE and OT alike is rightfully under close scrutiny. It is not enough to be the good Ham — to be worthy and of good intent. We must be seen to be the good Ham. The banner of service and commitment needs constant raising and who better to do it than the NOVICE coming on. If this sounds like syrupy idealism in a world where nothing is sacrosanct or seemingly has final value — ponder a while. That which is without ideal, standard, ethic or code, has little worth having and unlikely to persist.

* * *

Now, a new age challenge confronts AR. Territory that is rightfully any man's is threatened. Ultimately there is no security, only opportunity. This is the order of things; as yet there is no other way. Our territorial imperative is basic but like the Romans we persist in too many games while the enemy gathers. Superlative rhetoric by our chosen representative in the coming world forum will not avail unless proof of our substance can be amply demonstrated. This is the NOVICE's most urgent role — give AR a new look.

* * *

The OTs have long looked at the heavens and pondered. Now, for the OTs of the future, the NOVICE, the greatest adventures and achievements are at hand. SSTV, the expanding world of VHF and maybe galactic DX. Because of innate curiosity and instinct for challenge, DX for man is a natural. So long as there is a wooded hill, a mountain spur, an ionosphere, a distant star, someone will dare to explore, to cross, to know what lies beyond. ■

The untempered fingers of the NOVICE who nervously pounds new brass on new bands are like a baby's timid and uncertain steps into a hostile, strange and competitive world. Both must learn that the path to any worthwhile proficiency can only be trod after the fashion of an old style journey — one hundred miles, one step at a time. Somewhere along the way the beginner's cocoon is shed and in the case of AR, there arrives a radio Ham — or hopefully a radio man.

NEWCOMERS NOTEBOOK

with

Rodney Champness VK3UG
and David Down VK5HP

NOVICE TRANSMITTER PART 5, AFTERTHOUGHTS

The transmitter as described in the previous 4 parts is quite functional and needs no modifications to it to overcome design inadequacies. However, builders of this transmitter, or the complete transceiver, may care to try some variants of the original design to suit their particular requirements. The transmitter can easily be put onto 160 metres, slight variations in the CW keying system can be tried, several other types of modulator can be used, and the complete transceiver can be wired so that an external receiver can be used in lieu of the built-in one, when deemed desirable. Some of these variants have been tried by the author and do work, the others will work but may require minor variations in component values or voltages applied. The transmitter as was originally described was designed on paper, put together, and tried. Very few components needed alteration...

VARIATIONS IN THE CW KEYING CIRCUIT

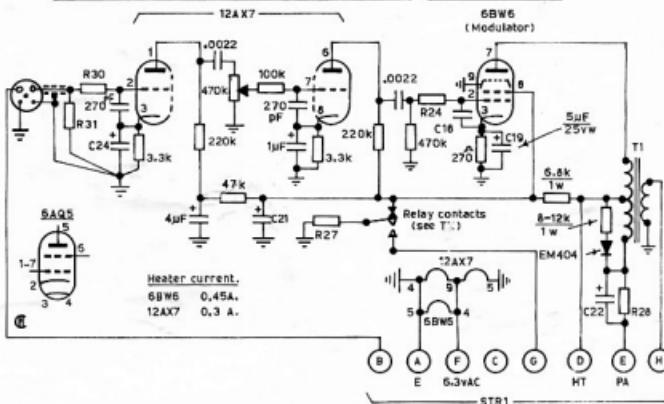
Ken VK3GK advised the author that the CW signal appeared to have a thump on the make. The design of the key click filter was of necessity a compromise as this is in essence a simple transmitter. To reduce the thump R8 was increased from 220 ohms to 410 ohms (2×820 ohm 1 watt). This is designed to slow the discharge of C4, and the attack time should now be about 10 milliseconds. It is not absolutely proven that this variation did in fact cure the problem. The effect is, however, minor and this change in value of R8 is not essential. It does have a side effect in that the PA current is kept to a more reasonable figure should the crystal fall out or cease to oscillate. With the increase in cathode to earth voltage drop which is now 21 volts it is in order to decrease R28 to 500 ohms 2 watts (2×1000 ohms 1 watt). This increases the total input of the plate circuit to nearly 11 watts and 8 watts output can be expected on AM with some 6GV8 valves. The input on CW remains at about 14 watts. The overall efficiency of 6GV8 valves varies slightly and efficiencies between 65 and 80 per cent can be expected.

The semi-break-in circuit can be slightly improved by replacing R14 with a resistor of 2.7 to 3.3 kilo-ohm. This speeds up the pull-in of the relay by a few milliseconds.

MODULATOR VARIATIONS

The modulator as it stands is quite satisfactory and will fully modulate the RF section. It has been found that the modulator as previously described has just sufficient gain and the gain control is set in the flat out position at all times. The 6AU6 can be replaced with a variety of valves and prob-

ALTERNATIVE MODULATOR FOR 10 WATT TRANSMITTER



ably the best ones to use, that will give increased audio gain and are readily available, are the 12AT7 and 12AX7; the 12AU7 has insufficient gain to be useful in this role. The gain of the 6AU6 in the circuit previously described is about 320, the cascaded stages of the three valves mentioned above are about 900, 5000 and 120. Fig 1 shows the circuit diagram for this new modulator using a 12AX7 and a 6BW6. A 12AT7 can be used in place of the 12AX7 and in most instances is a plug-in replacement.

The cathode resistance might be reduced to 2.2 kilo-ohm for more accurate biasing. If you have a high resistance multimeter you can check the plate voltages of each of the triode stages and adjust the cathode bias resistors so that the voltage drops across the plate load resistors (0.22 meg ohm) are the same as the drops across the valves.

In Fig 1 the modulator output valve is shown as a 6BW6, but a 6AQ5 or a 6V6GT can be used as they are direct equivalents. These valves have less gain than the 6BO5, so need the extra gain afforded by the twin triode preamplifier section. Other suitable output valves are 6CW5, 6CZ5, 6LG6, 6Y6G, etc. These latter valves would probably require different grid bias to the previously described modulator valves.

The cathode resistors will therefore be different to those originally specified. The plate and screen voltages may also be different.

It will be noticed that a diode and resistor have been wired across part of the modulation choke. In the original design this was not found to be necessary, but is a desirable addition to the circuit as it assists in preventing over-modulation in the negative direction. The common name for this diode/resistor network is a negative cycle loading circuit.

Next month will conclude the description of the transmitter.

**REMINDER
TO
FINANCIALS**

- If you have not yet paid your 1976 subscription, please note this reminder for personal attention.
- If you have not received any subscription notice please write for a duplicate.

Inserted on behalf of the Divisions
by the Executive, P.O. Box 150,
Toorak Vic. 3142

A REVIEW OF THE G3LLL RF SPEECH CLIPPER

The G3LLL clipper is designed and produced to be compatible with the popular FT101 series of transceivers. It is of course not usable with the new FT101E as this already has an RF speech processor included.

Full instructions are included for the simple wiring changes needed to hook it up to the 101. It would seem that the unit might be adaptable to other Yaesu transceivers and transmitters that use the same IF frequency of 3180 kHz. However the instructions supplied only apply to the FT101 and FT101B so adaptation to other rigs would be entirely up to the individual.

We received our unit direct from the manufacturers, G3LLL Holdings Ltd., from whom the clippers can be obtained for £45 sterling, air post paid. G3LLL Holdings Ltd. are also current advertisers in this magazine and readers are referred to this.

Firstly we will look at the claims made for this unit by the manufacturers. They state:—

"At last a distortion-free radio frequency clipper that really works. The LLL's/101 RF clipper is designed ONLY for use with the FT101 — Blow the Expense — no compromise design. The input filter itself costs nearly £20 and matches the side band filter to the FT101. All FET design uses dual stage low level, low impedance clipping. A diode switch on the input control in conjunction with a controlled FET stage adjusts the gain independently on receive and transmit. The gain on receive is set so as to give a boost of two 'S' points. The extra sideband filter gives a noticeable improvement in adjacent channel selectivity, and as the gain is added after the filter, this gives improved AGC action with an apparent improvement of cross modulation performance. The LLL's RF clipper must not be confused with normal clippers, which often are no better than a really good microphone. Run a Kilowatt Mobile? Better than a Linear and a quarter the price".



Well so much for the claims. Now let's see what the clipper will actually do in practice. Included with the clipper was a new microphone insert, an ACOS crystal unit. It was recommended that this be substituted for the dynamic insert in the FT101 microphone. It must be admitted that the normal 101 microphone lacks high frequency response and that the substitution of the crystal unit could be worthwhile.

To connect the clipper to the 101 requires the running of coax cable from the external VFO socket to the IF board socket. The coax is a special low loss type and is supplied with the clipper. If the clipper is disconnected it is necessary to insert an octal plug with a shorting connection to restore normal operation.

Before proceeding with a resume of results and observations, it must be pointed

out that the use of a clipper or compressor of any sort, this one included, does not increase the actual peak output of a transmitter.

Only a suitable linear amplifier can do this. What a clipper can do is bring up the average output audio level so that it more approximates the peak. The less distortion introduced in the process the better. Before actually testing the G3LLL clipper on air a few points were noted.

Firstly if an external VFO is used, some form of adaptor would have to be made up to accommodate both the clipper and the VFO.

Next, with the clipper disconnected and the shorting plug in, the receiver gain drops by about two "S" points. As the 101 normally has plenty of gain this may not prove a great disadvantage. Also, the IF output socket on the rear panel of the 101 changes



WHAT IS THE WIRELESS INSTITUTE OF AUSTRALIA

The Wireless Institute of Australia, to give it its full name, is really a combination of eight separate self-governing bodies which are registered companies under various State Corporate Affairs Acts.

Each of the eight bodies has its own Constitution and Rules. In practice many of them have Constitutions which are almost identical to one another having been devised nearly 30 years ago in the form of a Uniform Divisional Constitution.

In each State there is a Wireless Institute of Australia as well as one in the ACT. Each one is known as a Division and looks after amateur radio affairs within the State where it has its headquarters. All the headquarters are in the capital cities except Tasmania which has a special Constitution of its own and three branches within the State.

Every member of the WIA is a member of a Division — ordinarily the one of the State in which he lives. The Federal Wireless Institute of Australia has seven members — the Divisions — but is not itself a Division. The Federal WIA in its present form was set up by the Divisions and came into being early in 1971 to do those things which the Divisions, by agreement, authorised it to do — almost wholly those things which were Australia-wide or which were international and external to Australia.

The Federal WIA has its own Constitution and is registered in Victoria where it has its headquarters so long as the headquarters of the Radio Frequency Management Branch has its headquarters here. Its name is "The Wireless Institute of Australia" as distinct from those registered in the various States and ACT which are named "The Wireless Institute of Australia, Victorian Division", "The Wireless Institute of Australia, New South Wales Division", etc.

The affairs of the Federal WIA — let us call it the WIA to save words — are controlled by the Divisions acting together in

the Federal Council. This Federal Council is made up of a representative, called the Federal Councillor, from each Division. Normally the Federal Council meets once each year at the Federal Convention.

The day to day affairs of each Division are managed by a Divisional Council (commonly of 10 members) which is elected by the Divisional membership annually.

The day to day management of the WIA is done by the Executive assisted by a number of sub-committees. The members of the Executive — six altogether — live in Victoria but are not members of the Federal Council. The Chairman of the Executive is the Federal President and he is usually the Chairman at Federal Conventions. The members of the Executive are elected at the Federal Convention.

When the WIA was formed the Federal Council (i.e. each Division's Federal Councillor) decided that, as it had been decided by all the Divisions that there was a great need for a central office function, Central Office must take over, on behalf of the Divisions, all the work involved in subscriptions and membership records. Then it came about that the Executive office does this work (through EDP) as well as acting as a central point for the Federal Councillors and a host of co-ordinating and other work in the Federal sphere.

In broad terms the Executive carries out the policies laid down by the Federal Council and it is also responsible for the small Executive office in Toorak which is managed by the Secretary of the Company.

The Executive is also responsible for publishing the journal "Amateur Radio" which is wholly owned by the Federal Council. In practice, AR, as we call it, is managed by a Publications Committee under the control of the Editor. This Publications Committee also looks after the publication of the Call Book and the Mag-pubs operations.

Because all the executives of the Insti-

tute at Divisional and Federal levels are volunteers, it is only natural that the paid staff of the Executive office is called upon to perform a wide range of duties, including ghost writing, exchange of information at all levels, preparation of reports, briefs and so on, much of which would have been done by the various executives themselves if they had formed part of a commercial organisation. The Secretary arranges interviews with Government officers and other persons and normally is in attendance for the purposes of co-ordination. He also attends Federal Council, Executive and other WIA meetings, all of which ensures a continuous pool of knowledge, documentation and information to facilitate the operation of the WIA.

Channels of communication by individual members are direct to their Division unless some special subject requires otherwise — for example subscriptions to Executive — comments direct to a Federal body, requires you write to the Executive office only on Divisional matters (for example, membership grading) delays will occur because your letter will be sent to the appropriate Division to deal with.

The central WIA's Executive is assisted in its day to day work by a number of Federal sub-committees or persons expert in specialised fields. The Publications Committee is one, the Project Australia Group, VHF/UHF Advisory Committee and Federal Repeater Committee are others.

Other fields are covered either by "Co-ordinators" at a central level — Intruder Watch, YRCS, EMC — or "Managers" — Federal Contests, Federal Awards, Federal QSL, SWL Awards. Additionally, there is the Federal Historian and the IARU Liaison Officer. In theory all these sections correspond with their Divisional counterparts but there is considerable flexibility depending on the subject.

Next month we will examine various matters in greater detail.

from a wide band point to a narrow band output. If you happen to be using a pan-adaptor such as a Heath SB 620, some delving into the 101 will be necessary to restore the required wide band pass signal.

With the clipper in circuit, the receiver performed somewhat better than original. The overall receiver gain can be adjusted with a preset in the clipper and the overall increase could prove very useful on ten metres for instance.

The increased selectivity was not really noticeable, however it no doubt would be with the earlier 101's using the older six pole filter.

When first used it was noticed that the action of the noise blanker was not quite as

effective. It was realigned according to the Yaesu instructions which restored it to normal — almost. A few odd things were found for which no explanation can be given. In a few cases, switching the blanker in actually increases the noise. This occurs in about 25% of the times the blanker is used.

On transmit, the clipper proved to be most effective. The weaker the report, the better the clipper performed. On an average the apparent increase was about two 'S' points with no audible distortion or loss of quality. Watching the output on a Heath SB610 monitor scope showed no sign of flat-topping but instead of the usual Christmas tree pattern, the audio peaks were all

reaching full output.

There is no doubt that when signals are weak, the G3LL clipper will make a very worthwhile improvement with no loss of quality.

In conclusion it is a pity that the finish does not match the 101. While it is neat in appearance, the hammer tone case and white panel look out of place. Also, the advertising photos show the unit sitting under a 101, but it will not fit there unless the front feet are lengthened. It will sit on top but the stiff connecting leads make it hard to position.

Run a Kilowatt Mobile? Well not quite, but very worthwhile increase in readability for sure.

VICTORIAN RADIO BRANCH SUPERINTENDENT TALKS TO AMATEURS

The following is a resume of an informal lecture given by Mr. Robert (Bob) Crowe, the Superintendent of the Regulatory and Licensing Branch of the PMG (Radio Branch), to approximately 80 members at the Moorabbin and District Radio Club's rooms on 17/10/75.

Mr. Crowe has given his permission for the publication of this material.

Although the details given here relate mainly to Victoria, the Publications Committee feels that due to the interesting subject discussed, we should print the details in AR.

Mr. Crowe commenced by stating the 3 prime functions of the Radio Branch.

They are:—

- (a) issuing of all licences for Radio transmission and reception for both commercial and amateur radio operators.
- (b) providing monitoring service of all HF and VHF frequencies to ensure that specified frequencies and tolerances are maintained.
- (c) ensuring that licence provisions are met.

It is interesting to note that a licence is required for both transmission and reception of signals that do not emanate from commercial broadcasting.

Severe penalties are handed out for breaches of the wireless telegraphy act, and at the present time it is pleasing to report that the courts are taking a more serious outlook on infringements.

As a State Superintendent, Mr. Crowe comes under the direct control of the Federal Minister. He cannot refuse a qualified applicant a licence. However, in cases of doubt, the Minister has absolute discretion.

Mr. Crowe has a mandate to inspect all commercial and amateur radio stations (through the RI's in the field).

A further function of the Radio Branch is to give type approval of Commercial equipment for two-way radios.

THE COMMERCIAL SCENE

Due to the many hundreds of VHF/UHF commercial stations operating in and around Melbourne, it is becoming increasingly difficult to locate a frequency for a new commercial station applicant, which does not cause interference to other stations.

The Department is helped in this regard by the use of a computer which lists the frequencies in numerical order of these stations likely to be interfered with by the operation of a new service.

The Radio Branch also surveys marine installations annually. Mr. Crowe was dismayed at the apathy of a few of the commercial fishermen and their disregard for the equipment installed in their vessels.

The monitoring station at South Morang, located 13 miles north of Melbourne, is situated on an excellent site and is capable of monitoring all transmissions from the Melbourne area and surrounding country districts. Advice on technical deficiencies is given together with investigation and diagnosis of interference. Frequency measurement is also carried out at South Morang.

INTERFERENCE

A major activity of the Radio Inspector is the investigation of interference to television reception. A large field staff works day and night to locate interference and resolve complaints.

The main cause of TVI is the State Electrical Reticulation System. (HF amateurs need not be told of the problems caused by residing close to 22kv lines). The introduction of colour TV has doubled the RI's work in that the slightest 'flicker' on the colour set now makes the set owners aware of a possible problem. Naturally, a call is made to the friendly RI.

The Radio Branch always confirms SEC interference by checking poles. An SEC crew is notified and the problem is usually overcome. Sometimes the interference problem recurs with the result that a new investigation has to be instigated.

The commercial operator on HF cannot be given immunity to electrical interference due mainly to the wide and varying causes of interference in this band.

The motor vehicle car radio design area is slowly including proper suppression, however, no set standards have been drawn up.

Solid state technology makes electronic devices vulnerable to electromagnetic radiation, and commercial equipment, stereo amplifiers and electronic organs etc. are the main sufferers.

This is due mainly to the lack of suitable design to alleviate the problem. The Radio Branch recognises this fact, and there has been a gradual acceptance amongst the manufacturers to include the necessary interference rejection circuitry in new designs.

THE AMATEUR SCENE

Mr. Crowe is not an Amateur Operator — his attitude towards amateurs is "neutral". He regards the amateur service as a responsible and self-regulating body. We are a cross section of the community, reasonable people, and have our own way of disciplining those who infringe the rules. For this we are highly respected.

Amateurs are recognised (in higher official circles also) as a vital link in times of disasters. The WICEN organisation is also well respected.

WARNINGS

After the above complimentary remarks, Mr. Crowe instilled some "vinegar" into the discussion.

(1) From reports and observations over the past couple of years, it is apparent that the 'technical' part of the amateur service had now largely disappeared. Satisfaction is now being gained from the acquisition of Commercial equipment which leads to a 'Social contact' type of transmission.

This point was hotly disputed by several members, and after much discussion it was re-asserted that this was the type of report his office was receiving.

There were no particular criticisms levelled in this regard and it is reflected as a 'sign of the times'.

(2) The WARC to be held in Geneva in 1979 means that the entire spectrum is to be modified by all representations of the nations attending.

As far as the Amateur Service is concerned, we need solid national representation to maintain our frequencies and privileges.

We must remain alive and alert

(3) Repeaters — Mr. Crowe is not sure if we can claim that we are in complete control of our repeaters. The licensee is fully responsible for all transmissions emanating from a repeater, and he must be able to satisfy the Department that he is able to control it. That is, switching off the repeater in the event of illegal operation or obscene language. If the licensee lives a ½ hour drive from the repeater site, he is not in control of it as far as the Department is concerned, and will not be allowed to continue under these circumstances.

Repeaters were originally introduced for mobile to mobile use, and in commercial installations must be able to be switched off by land line. The view is taken that illegal operators could put mobile transceivers in vehicles and run unlicensed services or criminal activities through commercial or amateur repeaters.

Illegal mobile operators are most difficult to detect and this is the main reason for the insistence on land line control.

It is a problem that we as amateur operators must resolve ourselves. If an amateur repeater service is broadcasting illegal or obscene material on a continuing basis, we will get no marks from the community at large if we cannot or will not do anything about it.

AMATEUR TVI

This is a problem which is dealt with mainly by ourselves. The amateur service does not have 100% protection in this area because it is a 'Hobby Service'. The solution is to switch off the transmitter and investigate, and only re-transmit after the problem is cured (see rule book). Make sure that solutions are dealt with amicably.

SUGGESTION

Would the amateur fraternity be prepared to limit power to say 5 watts, and then seek allocations in all of the bands?

Utilise and rely on a high degree of technical expertise in regard to antennas, feeders and bandwidth? Make a feature of minimum power — maximum communication, write articles and publicise it in all Amateur Radio journals?

Comment from floor

Australian amateurs are doing just that with low power and high efficiency, but HF band conditions are poor for low power at the moment.

NOVICE LICENCE

The first novice exams were expected to be held soon. The delays have been caused by Industrial action within the Department and have now apparently been overcome. The industrial action was of a matter entirely divorced from Novice and amateur exams.

PIRATE ACTIVITY

Amateurs are expected to set examples to newcomers to alleviate pirate activity.

The Department is very much aware of pirates, particularly in the 27 MHz band, and is active in its prosecutions. Approximately 2 or 3 pirates are prosecuted each week and most of them high power operators have been cleared out from Victoria. The 5 watt base operators being particularly vulnerable.

REPORT BY VK3UV.

L-NETWORK COUPLER FOR 20 METRE END FED WIRE ANTENNA

C. Hagoort VK5YH
16 Gilbert St, Ingle Farm, S.A., 5098

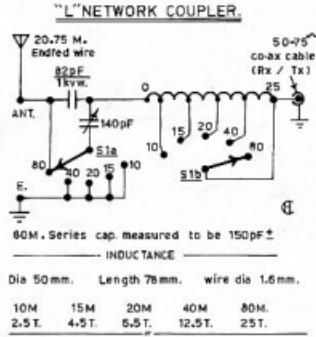
This antenna tuning unit is specifically designed for those who have only limited space to put up an antenna on the HF bands.

It should be used with an end fed wire antenna cut to a length of 20.75 m. The antenna is current fed on 80 m and voltage fed on 40, 20, 15 and 10 m. A good earth is required to ensure that the antenna works on 80 m.

The antenna tuning unit matches the antenna to 50 or 75 ohm co-ax cable. The required band is selected by a 2 pole, 5 position switch which also switches the

140 pF tuning capacitor. Series tuning is required on 80 m, and parallel tuning on the other bands. The 82 pF mica capacitor serves a dual purpose. On 80 m it is connected in parallel to the 140 pF tuning capacitor, and on the other bands it merely works as a coupling capacitor. This antenna system has been in use at the author's QTH for several years and the results on 80 and 40 m are very good. It works satisfactorily on all bands, but a beam would be a better proposition on 10, 15 and 20 m.

At this QTH the antenna is strung up at



an angle of about 45 degrees. The wire runs from the transmitter in the spare bedroom to the eaves of the house and then to a 15 m high telescopic tower in the backyard.

MAGAZINE INDEX

with Syd Clark, VK3ASC

CO MAGAZINE June 1975
RF Impedance Measuring Instruments: 1974 CO World-wide DX Contest; CW Results; A Proposed Method for the Establishment of New Amateur Radio Power Limits; Antennas: Portable and Indoor; QRP Field Day Antennas.

August 1975
Upgrading Inexpensive Counters; Reflections on Maxwell's Reflections; Heathkit SB-104 SSB/CW Transceiver Kit; In Focus; Resolution Chart for SSTV; Antennas: Quads and Delta Loops; VFO Switching with PIN Diodes; Novice: Comments on Licence Proposals.

HAM RADIO July 1975
1296 MHz Double-Balanced Mixers; Universal Tone Encoder; Low Profile Quad Antennas; Phase Modulation Principles; Television Sync Generator; Multiplexing Digital Readouts; 432 MHz Converter and Preamp; Parabolic Reflector Gain; 1975 Sweepstakes Winners.

August 1975
160 Metre Linear Amplifier; FM Alignment Techniques; Programmable Keyer Memory; Solid State 432 MHz Linear Power Amplifier; Adjustable Voltage Regulator IC's; Calibrated Keyer Time-Base; Latch Circuit for Transmitter Control; FET Controlled Battery Charger; QRP Transmitter; RTTY Audio-Frequency Keyer.

QST October 1975
A High-Performance 50 MHz Amplifier; The WSOS Hula-Hoop Loop; 160 Metre DX; Shunt Feeding Towers for Operating the Lower Amateur Frequencies; Another Method of Shunt Feeding Your Tower;

A Morse Code Alphanumeric Display and Converter; CMOS and the Ham; The Heath SB-104 Transceiver (Review); Learning to Work with Semiconductors; Pt. 6: Results 1975 ARRL International DX Competition.

73 MAGAZINE September 1975

The Calculating Counter; A Satellite Fax System You Can Build; Where Is Your Simplified Millivoltmeter; Three Button RT Decoder; Underground Radio Is Dirty Business; What's Wrong with my SSTV? Queen Roger Papa from Hotel Whisky Seven; 40 m DX Antennas — The Easy Way; The Oscar Zapper; Digital SWR Computer; Full Break-In at 60 wpm? Odd Problems with an Old Antenna; The Alligator Squeicher; You Don't Have a Power Failure Alarm? Portable QRP Power Unit; You Can Fix It; Precision 10.000V DC Voltage Reference Standard; Building a 135 kHz IF Strip; A True Tale of the Faked Fist; Adapting Telephone Handsets to FM Transceivers; Atlanta 1975; ATV on 450 with a T44; 60-60 MHz Synthesizer; Bridging the Information Gap.

RADIO COMMUNICATION October 1975
Digital Frequency Readout for the KW2000A; The Three Element Zyg Beam Aerial; A 160 m SWB Transmitter Using Active and Passive Phasing Techniques; A Wavemeter for VHF and UHF; Technical Topics — Commercial VHF Trends; 144 MHz Converter; G301K VLF Balanced Mixer for SSB Generation; Extreme Low Angle Sites; D-MOS Dual-Gate FETs; TTL Oscillator; More on the PALO.

BREAK-IN September 1975

The Dummy Load; SWR 1:1 Fact or Fiction; A Portable Helical Antenna and Matching SWR Bridge; Some Handy Aerial Lengths; A Simple Mute Delay; Corrosive Comment.

RADIO ZB July 1975
Capetown Branch in the Early Days of the SARL;

Ham Participation in the S.A. Championships for Radio Controlled Aircraft; The Two-Metre Skeleton Slot; Radio Amateur Antenna Tower; Patching HF to 20 m FM; Hamnet — Western Cape; The Radio Tracking of Satellites; The Creed Model 7B on RTTY.

August 1975

Formation of Technical Working Groups; More About the Z58U Minishack Special; Notes on Neutralizing Final Tubes; Small Loops for the Lower Frequencies; Propagation; Technical Topics — FT101 Snag Solved.

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AMENDED SWITCH CIRCUITRY
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Snb

TO ← →
TRANSMIT
SWITCH
VIA S3B
O

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QSP

UNITED WE STAND

Someone's eye caught a little item in Nov '74 QST which, in as far as today everyone including the U.S.A. had "An application made from an individual amateur about the 50 watt peak power limit on 420-450 Mc led FCC to change the limit to 50 watts input, actually a reduction of permissible power — again underscoring the desirability of raising questions about regulations through the League rather than direct to the Commission".

PLANNING PERMISSION FOR TOWERS

A well known Melbourne member shifted QTH a year or two ago to a house in an area zoned "Reserved living". His application to put up a mast in the garden was refused. The reason given by the relevant state was to have been that the proposed use was not an appropriate one for the land because of its effect on the amenity of the adjoining properties. With the assistance of his Division in relation to legal representation he appealed to the Town Planning Appeals Tribunal. It appeared as if the opposition to his appeal was immense — legal representatives, almost in droves, appeared for all concerned except the "objectors". The amateur won his appeal and one of the paragraphs in the appellate judgement — appeal X74/1029 — is the reference for anyone else affected — is very interesting indeed and reads —

"It seems to us that an amateur radio station conducted as a hobby in and from a detached house would be part of the normal use of such a house. We do not think a planning permit for the proposed mast is required though a building permit under the uniform building regulations would of course be necessary. Whether or not a permit is required, we are, however, of the opinion that the proposed mast would have a negligible effect on the amenity of the neighbourhood and any slight adverse effect which it may have, is in our opinion more than compensated for by the community benefit given by this radio station".

I.T.U.

The June 1975 issue of the influential Telecommunications Journal of the I.T.U. contains an important editorial by the Secretary-General of the I.T.U., Mr. M. Milli about the I.A.R.U. Region 1 on its 50th anniversary and concluding with some sage comments about W.A.R.C. 1979. Mr. Milli is not himself a radio amateur but it is very encouraging to read of the obvious interest in the subject by such a distinguished person.

RADIATION HAZARDS

The editorial in Sept. '75 Ham Radio is interesting in pointing out the rising concern over the possible harmful effects to living tissue due to heating by electromagnetic radiation in the frequency range from 10 MHz to 100 GHz. Various governmental and industrial organisations involved in establishing radiation safety standards, it states, have recommended exposure limits referred to as Radiation Protection Guide Numbers (RPGN) which, at the present time has the value of 10 milliwatts per sq. cm. of body area. One tenth the RF power levels (mW/cm²) do not have any noticeable effect.

The safe distance from an antenna is discussed and concludes with an example of a 30 ft. EME dish with only 10W input at 432 MHz being hazardous at distances of less than 18 feet.

USA CB GEAR

Ham Radio Sept. '75 comments that continued abuses by CBers using amateur transceivers and manufacturers building "broadband" linear for the "Amateur Radio market" that just happen to deliver full output with only 4 watts drive (on ten metres of course) have pretty well forced the FCC to act. This course of action is believed to have some application in this part of the world also.

COMPONENTS SHORTAGES

Amateur gear shortages have been plaguing dealers for some time and are likely to continue before they get better. The Ham Radio comment in the Sept. '75 issue goes on to say that the major cause of the problem is the CB explosion, since many manufacturers — particularly those in the Far East — supply both the Amateur and CB markets and it pays them to put their major effort in the market with the most money.

VHF UHF an expanding world

with Eric Jamieson VK5LP

Forreston, S.A. 5233
Times: GMT

AMATEUR BAND BEACONS

VK0	VKOMA, Mawson	53.100
VK0	VKOGH, Casey	53.200
VK1	VK1RTA, Canberra	144.475
VK2	VK2WI, Sydney*	52.450
VK3	VK2WI, Sydney	144.450
VK3	VK3RTG, Vermont	144.700
VK4	VK4RTL, Townsville	52.600
VK4	VK4RTL, Mt. Mowbullan	144.400
VK5	VK5SVP, Mt. Lofty	53.000
VK5	VK5SVP, Mt. Lofty	144.800
VK5	VK5RTY, Perth	52.300
VK5	VK5RTY, Kalgoorlie	52.350
VK5	VK5RTW, Albany	52.350
VK5	VK5RTW, Albany	144.500
VK5	VK5RTY, Perth	145.000
VK7	St. Leonards*	52.400
VK7	VK7RTX, Devonport	144.900
3D	3D3AA, Suva, Fiji	52.500
JD	JD1YAA, Japan	50.110
VE	VE1ATN, Canada	50.056
KG6	KG6JDX, Guam	50.105
	KGR8PA, Guam	50.150
ZL1	ZL1VHF, Auckland	145.100
ZL2	ZL2VHF, Mt. Stewart	52.500
ZL2	ZL2VHF, Wellington	145.200
ZL2	ZL2VHF, Palmerston North	145.250
ZL3	ZL3VHF, Palmerston North	143.850
ZL4	ZL4VHF, Christchurch	145.300
ZL4	ZL4VHF, Dunedin	145.400

* Denotes addition or change.

A very welcome letter from Athol VK2ZYT indicates the VK2 beacons have been re-instated into service after a period off the air due to various problems associated with their operation, which have been corrected by Roger VK2ZRH. I also see from the VHF notes in "QRN" the bulletin of the Northern Branches of VK7 that a six metre beacon has been constructed for operation in the northern area of Tasmania. This beacon awaits its licence from the PMG. When operational it will have a power of 25 watts to a dipole aerial, on 52.400 MHz with 850 Hz FSK. Details have been included to make you aware of the possible operation of such a beacon; a starting date is not available to me, nor the call sign.

CANBERRA NEWS

"Forward Blaz" mentions the reception again of VK2 6 and 2 metre Sydney beacons in Canberra. VK1VX, VK1ZK, VK1MP, VK1M and VK1DA are all active on 6 metres SSB. It is also interesting to note that in Canberra at least 55 of the 142 call signs in the new call book operate on 2 metres FM; about 42 per cent.

Also in the same bulletin comes advice that the FM repeater at Orange (FRED) is now operating on new Channel 1.

FROM MOUNT GAMBIER

News comes from Mt. Gambier that the South East Radio Group beacon for 144.650 MHz is making good progress. Chris VK5SG has the kewy working very well with FSK on an exciter unit. Ivan VK5GV has designed an electronic fail-safe unit for the beacon. David VK5ZOO has been concerning himself with the construction of the 2 metre repeater for the area, and this will probably be placed on Channel 8's microwave tower in Mt. Gambier. Possible operation will be channel 2 or 3.

144 MHz conditions have been good in and out of Mt. Gambier during November, particularly 14/11 when Trevor VK5NC worked 7 stations in Melbourne. 15/11 conditions good to Adelaide. Those worked included VK5KK, VK5SV, VK5ZPS, VK5ZPZ, VK5LP, VK5ZHR and VK5NA. It seems the activity within a 50 mile radius of Adelaide are presenting a steady pace on 144 MHz SSB. Peter VK5ZPS is a regular in Adelaide, but there are not many others. What about it chaps?

MOONBOUNCE

From the notes of Lyle VK2ALU via "The Propagator" comes news of the EME tests on 27/10 which provided a first contact with K6QDQ on 432 MHz. The FWDV was heard once more. On 1/11 VK2ZEN demonstrated the receiving equipment to copy signals from WASLET, using their 150 foot dish at the Stanford Research Institute in California, USA. Signals were consistently 15 dB or so above noise! The next tests from WASLET are scheduled for 23/11/75.

On 2/11 tests were made in the early hours of the morning with a number of stations in USA and Canada. WJ3AA was copied, and later VE4JX, but they could not copy the full calls from VK2AMW. A short circuit then developed in the 20 volt supply cable to the pre-amplifier at the antenna, and steady rain prevented repairs in time for further contacts.

News is also to hand that Les VK3ZU copied WASLET on 1/11 using a single loop yagi, 18 to 20 feet long. Chris VK5SMC heard them on the same date using a stack of 4 x 13 element yagis. Much interest is centred on the next WASLET 432 MHz test for 23/11 when it is known in VK5 that at least the following will be listening: VK5SMC, VK5NC, VK5ZPS, VK5QR and VK5LWP. News of the results next issue.

GENERAL NEWS

Steve VK3ZAU writes to say he has sheds running with two stations in Nauru, C21DC and C21KHM, MM, on 59.050 or 52.020 from 1900Z each morning. Steve runs 400 watts of SSB to a 7 element yagi 80 feet up. He mentions the difficulty facing the operator of C21KHM who is maritime mobile with limited space, but he has a SSB transverter and a small beam on board.

Steve also mentions a continued interest in 144 MHz SSB, and is doing what he can to promote more activity there in VK3. Hope you are successful Steve. For those not wanting to build, small SSB units are now appearing on the market for operation on the low end of the 2 metre band. A number have appeared already in VK5, so we all hope this will be a trend which will be on the increase.

A brief note from Rod VK2BQJ mentions his 1296 MHz gear almost finished, with 100 watts output. 432 MHz seems rather dead in the Sydney area. Rod mentions also that VK2AHC and VK2ZAC are likely to be making a record attempt on 2304 MHz on the weekend of 22 and 23/11, from Mt. Canobolas to Mt. Ginnind. Good luck! Thanks Rod.

SIX METRES

Six metres got away to a rather slow start this year, very little being heard for the first half of the month. This slower start may well indicate 6 metres could remain open more into January than it has for years and could possibly indicate some excellent operating in the Christmas. Some of the first stations to be heard in 1975 were from VK5, and during the week commencing 16/11 openings have occurred to VK4 in the main. Consequently, as these notes need to be prepared earlier because of the Christmas break for printers there is little to really report on 52 MHz so far. I note David VK5KK is keeping the band under regular surveillance, and Kerry VK5SU will have to watch out or David will be taking the Ross Hull Memorial Trophy from him this year!

TWO METRES

I am sure this will be a good band to watch again this year, particularly at the weekends, and especially with 6 metre openings are evident over a wide area. Monitoring of FM channels and 144 MHz will help to get the messages across. Some upgrading of antenna systems has taken place at my QTH. Now I have a 10 element yagi for 144 FM and a 4 element for 52.525 FM, both vertically polarised at 73 feet, and can feed both with about 60 watts of FM. For 144 MHz SSB I can feed 100 watts or more into an 8 element wide spaced yagi 57 feet, or a 16 element colinear at 58 feet, and on six metres SSB up to 300 watts into the 6 element wide spaced yagi at 50 feet. And of course there is the 13 element yagi at 67 feet for 432 MHz, maybe a contact or two on that band!

FROM NEW ZEALAND

I was somewhat disturbed to read a letter printed in "Break In" for October 1975, and I think it is worthy of your reading.

Here it is with comment to follow: "Dear Sir, I would like to propose the adoption of a standard polarization on 2 metres. I think the adoption of vertical polarization would have the following advantages:

- (1) Compatibility with existing repeater systems.
- (2) Best polarization for simple portable equipment.

(3) Reduction of station incompatibility — having to cope with AM, FM, SSB is bad enough without having to put up with polarization loss.

- (4) The use of one polarization enables best use to be made of one's antenna erecting ability.

"Any propagation advantages horizontal may have over vertical are small, if detectable, and much less than the natural variability of signals over any given path.

"I would like to see consideration given to this proposal and perhaps the general use of vertical polarization on the next VHF field day". — E. J. Barnes ZL2TAK.

Personally I can think of nothing worse than having one antenna to cover two operating modes and associated equipment. Imagine operating on FM and then having to take a look over the low end of 2 metres with your SSB equipment, so we unscrew the coax from the FM gear and screw it into the SSB rig. Then the process is reversed next time FM is needed.

As most operators of FM equipment need only work through a repeater to satisfy their operating requirements, a small vertical antenna fulfills their needs. SSB operating is invariably over longer distances and for this a beam is required. Now if you are going to have a beam to work well at 144.100 MHz, then it is going to be a poor performer at 146.400 MHz. Straight away you are going to need two antennae. If you are going to need two antennae why not stick to standard practice and have one horizontal and leave it on the SSB gear all the time. This seems a sensible arrangement to me.

The question of propagation and polarization is something which can be discussed at length. Sufficient to say there is plenty of evidence to suggest that for long haul working over difficult terrain horizontal polarization will invariably win, all other things being equal. Ask Eddie VK1WP who has tried both on the 'path' to Sydney. I cannot get over my hills here too well vertically, but quite good horizontally. And so we could go on. No let us leave the whole thing as it is, and make that extra effort to build an antenna for both paths."

A contained in "Break In" is a comment from AMATER NEWS that DX activity through the satellites "6 and 6R" is increasing at an enormous rate. Stations such as 4W1ED, ZB2BL, ZU2EF and FY4A5 have been worked from Europe. The activity seems to be encouraged by new imported equipment for SSB and CW on 144 MHz. This activity promises fantastic results for users of the AMSAT Phase III high orbit space craft due to be launched in the late 1970s. Full details of the new space craft were published in the June 1975 issue of the AMSAT Newsletter. WECG and W7VEW have been sending experimental ECG (heart-beat) data through the space craft and are getting good results, both in receiving the data and decoding it.

"HGSBME from the Technical University of Budapest, Hungary, had planned satellite-to-home broadcast transmission tests on various orbits of both Oscar 6 and 7 during October 1975, through Oscar 6 with full carrier, speech and music, and Oscar 7 15 kHz FM speech and music. No reports are to hand as to how these tests turned out."

That seems to be the news for this time. Concluding with the thought for the month: "Music expresses that which cannot be put into words and that which cannot remain silent".

The Voice in the Hills

Letters to the Editor

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the Publ. shers.

The Editor.

Dear Sir,

I have just read Bob Guthberlet's YRS column in AR November '75.

It appears to me that the support for YRS from

amateur ranks is abysmally poor at the present time.

Even if the PMG exams are in a state of uncertainty we, as hams, should all do something to foster the interest in radio of all young people — girls and boys.

There are all too few dedicated teachers and leaders operating YRS courses and clubs around Australia. All amateurs who can spare some time should assist where they can.

Our younger generation need to be shown some worthwhile hobby or career pursuits in a practical way these days. Especially in the light of increasing leisure activities and the all-too-permissive attitude of "let them do what they want".

This only leads to anarchy and kids thus get into trouble; or get nothing useful done.

One example is the fast growing herd of 'CB' band operators who are just going to cause more pollution of our valuable RF spectrum.

We must motivate as many people as possible to get a legitimate amateur's licence and operate with all privileges.

If the WIA divisions are not supporting YRS activities as they should be, then they should be thoroughly ashamed of themselves and ought to stop and re-think their priorities.

It seems to me that there is increasing pressure upon the amateur frequencies by commercial and other services. If we are to defend our bands, we need weight of numbers and more operators occupying them. We need not fear a sudden rush of operators who will clog our bands; diversion of interests and other standards will take care of that. But we do think that by training more young operators in our line of business both as a foundation for a career and to provide a sound hobby interest to keep some of our youth engaged in some creative activity.

The WIA Divisions, and in fact all Radio Amateurs in Australia, deserve a broadside blast for lack of action and general apathy if they are not in some way assisting someone into the fine art of amateur radio.

Take time to re-read what Hiram Percy Maxim has to say in the front of the ARRL handbook or read the foreword in the RSGB handbook. Remember: the amateur is: courteous, helpful, resourceful.

If you help just one youth into the art, then you are contributing something worthy of merit.

Amateur radio promotes international goodwill and gives one something better to do than watching excessive soap-operas on TV.

What are you doing to promote amateur radio and YRC5? Ring or write your State Supervisor, to find out where you can contribute. — Graeme Scott VK3ZR.

The Editor,
Amateur Radio.

Dear Sir,

The VK2 beacons have recently been returned to service after a long period out of commission.

They are now operating as before, on 52.450 and 144.010 Mcs using the callsign of VK2WL power output being similar to that originally used.

Thank you for your work on the magazine.

Yours faithfully — A. D. Tilley 22YT, Secretary, New South Wales Division VHF and TV Group.

NCDXA Members:

AA — 3AQD, 3HRV, 3KSQ, 3MBO, 3NGS, 3HNG, 3VQP, 4HPF, 4KJR.
AB — 2EKK.
AC — 2GHK, 3AFM, 3AZD, 3BQV, 3BWZ, 3COR, 3DRE, 3DST, 3EZT, 3KAL, 3NL, 3QW, 3RKH, 3S9, 3VNH, 3ZSR, 4MPS, 4IDG, 4KFC, 4QAW, 4UMF, 4WNSF, 4WPS, 4ZSR.
AD — 3CHP, 3EH, 3ZAW, 4BEO, 4CFB, 4CTY, 4DXD, 4EYB, 4EKJ, 4GKD, 4KQB, 4OMR, 4WVT.

1976 OLYMPICS AWARD

Amateur radio operators (and Short Wave Listeners) worldwide are invited to participate in the celebration of the XXI OLYMPIAD to be held in Montreal, Canada in 1976.

Two different and attractive awards will be issued for working or hearing (for SWLs) amateur radio stations according to the following conditions:

Canadian '76 Olympics Award

Communications Canada has authorised the use of the "XK" prefix for "VE" amateur stations and the "XN" prefix for "VO" stations during the period 1st August 1975 to 31st July 1976.

At least one contact must be made with each of the call area XJ1-XJ8 and XN1 and XN2 for a total of 10 contacts. Any contact with XJ0 (VE0, Maritime Mobile station) or the special Olympics ham station C220 will be allowed as a substitute for any missing call area prefix.

Send certified log data list and \$1 or 7 IRCS to VE3LSS, Radio Club, Listowel District Secondary School, Mr. G. Hammond, 155 Maitland Avenue S., Listowel, Ontario Canada N4W 2M4.

World '76 Olympics Award

Work and/or hear amateur radio stations in any fifty countries which will compete at the 1976 Olympics in Montreal, Canada. One contact must be with a Canadian station using an "XJ" or "XN" prefix. A special seal will be affixed for a contact with C220 the official amateur radio station on the XXI OLYMPIAD site.

Send certified log data list and \$1 or 7 IRCS to VE3LSS at the above address.

AUSTRALIAN DXCC

PHONE	CW
VK6RU	310/351
VK4KS	313/334
VK5MS	313/343
VK6MK	306/333
VK3AHO	304/326
VK2APK	300/313
VK4PX	294/301
VK5AB	291/314
VK4UC	286/293
VK4FJ	287/314
VK3JW	283/290
VK4TY	279/288
VK3AHQ	308/331
VK2OL	303/332
VK3YL	294/317
VK2APK	291/304
VK4FJ	290/322
VK3XB	280/300
VK3NC	268/297
VK6RU	266/295
VK3YD	256/281
VK4TY	253/272
VK3TL	248/260
VK3RJ	245/265

OPEN

PHONE	CW
VK6RU	310/351
VK4KS	313/340
VK4SD	314/335
VK3PA	311/329
VK2EO	306/335
VK6MK	306/333
VK2OW	301/311
VK4PX	301/312
VK4FJ	300/332
VK4TY	300/321
VK4UC	297/303
VK3XB	266/306

New Members

Phone	Tally
VK2OW	105
VK2SK	104
VK5AX	101
VK5RX	115
VK2EB	110
Open	
VK2OW (now VK2OC)	102
VK3AUT	105

20 Years Ago
with Ron Fisher VK3OM

JANUARY 1956

Democracy At Its Best. The Editorial of the January 1956 Amateur Radio looked at the history and growth of the Boy Scout movement and its connection with Amateur radio operators. The Wireless Institute of course provided communications for the Pan-Pacific Jamboree. During the last twenty years this relationship has grown to a very marked extent. With the advent of television and TVI many

amateurs of the day were redesigning their transmitters to incorporate a PI network final tank circuit.

They provided increased harmonic suppression and an easy method of band switching. However they were a complete mystery to many of us so K. M. Saxon VK7AI produced his article "PI Network Tank Circuit" at just the right time.

Hans Ruckert VK2AU described his power supply in the final part of "A Transmitter With Low Harmonic Output".

Methods and results of "High-Level Clipping and Filtering" were reprinted from QST. Then, as now, it was always the object to get a bit more for your money. This was the brute force method that depended on a higher than normal modulator output.

An Integral Crystal Calibrator for Superhet Receivers. Jim Lloyd VK3AST used a novel method by changing the normal IF frequency from 455 kHz to 500 kHz. Then by crystal locking the BFO to 500 kHz it served as both the BFO and a calibrator.

Three short articles concluded the technical coverage for the month. The Slot Beam reprinted from the RSGB Bulletin, Gated Screen Modulation by S. Burrows VK2AYB, and Single Switch Control by H. Wohlers VK3YY.

A photo of several preminent Victorian amateurs attending the State Convention is interesting. Max Hull VK3ZS really doesn't look any older today. ■

TOWNSVILLE PACIFIC FESTIVAL CONTEST

Congratulations go to John Roberts VK4TL of Cairns for a fine effort with 493 points in the open section and winning the trophy which was presented to John by last year's winner Les Bell VK4LZ at the North Queensland Convention held 26-27 July, 1975.

Thanks are extended to all amateurs who participated in the contest and congratulations to the section winners.

Section A: TRANSMITTING ALL BANDS PHONE ONLY

VK4XZ	229 points
VK7HE	25 CW points

Section B: TRANSMITTING ALL BANDS CW ONLY

VK5DL	242 points
VK2CX	194 points

VK7HE	102 points
VK3CM	85 points
VK7ZO	18 points

Section C: TRANSMITTING ALL BANDS OPEN

VK4TL	493 points
VK4LZ	326 points

VK4TE	287 points
VK4YHG	259 points

VK4PV	259 points
VK4HE	255 points

VK4A9G	244 points
VK4WV	200 points

VK5OY	225 points
VK4ZL	222 points

VK4ZEE	168 points
VK3XT	65 points

VK4PS	61 points
VK4CR	53 points

VK5KJ	43 points
VK2WO	26 points

VK4HS	2 points
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Section D: RECEIVING ALL BANDS OPEN

Tony Nance	284 points
------------	------------

Hugh C. Barlow VK4AM,
QUEENSLAND CONTEST MANAGER.

QSP

ISLAND COMMUNICATIONS

"It has always been my dream to see in our country an increase of the (amateur) population, for the simple reason that ours is a nation of 7000 islands which can only be linked together by a network of radio communication. Commercial radio for economic reasons can only serve the most populated areas. Amateurs can fill the gap more efficiently and more economically than by any other means". Part of editorial in QTC of the Philippine Am. Radio Assoc. Vol 2, No. 2.

Contests

with Jim Payne, VK3AZT
Federal Contest Manager,
Box 67, East Melbourne, Vic., 3002

REMEMBRANCE DAY CONTEST RESULTS

Sincere apology to VK6 for error in published results. The trophy score for VK6 (column F) should be 4900 which places VK6 third in the contest.

CONTEST CALENDAR

Jan. 28 Hungarian.
Jan. 3/4 Nostalgia Radio Exchange.
Jan. 3 Pacific DX Net Party.
Jan. 14/15 YL, RL, DX, CW.
Jan. 10/11 YU 80 metre CW.
Jan. 23/25 CQ, WW 160 metre CW.
Jan. 28/29 YL, RL, DX, Phone.
Jan. 31-Feb. 1 French CW.
Feb. 7/8 ARRL DX, Phone.
Feb. 14/15 John Moyle Field Day.
Feb. 21/22 ARRL DX, CW.
Feb. 28/29 French Phone.
Mar. 6/7 ARRL DX, Phone.
Mar. 20/21 ARRL DX, CW.
Mar. 27/28 CQ, WW, WPX, SSB.

YU 80 METRE CW DX CONTEST

2100 GMT Jan. 10 — 2100 GMT Sunday, Jan. 11.

Exchange RST and QSO number. Score 1 point for contacts between stations in same country, 2 points with other countries on same continent, 3 points with other continents. You should count for 10 points. Multiplier is one for each DXCC country and each YU prefix worked. Certificates to top scorers in each country with 2nd and 3rd place awards where justified. All VK call areas considered separately for awards. There are also trophies for continental winners. Logs to reach YU DX Club of SRJ, P.D. Box 48, 11001, Belgrade, Yugoslavia, by March 15, 1976.

FRENCH DX CONTEST

CW Jan. 31 - Feb. 1, 1976.

Phone: 27-28.

Each 1400 GMT Sat. — 2200 GMT Sunday.

Contest exchange includes continental France, FUV countries and the following prefixes ON, HB, LX, VE2, OD, HH, 3B, 9U, 9Q, 9X. The same station can be worked on each band for QSO and multiplier credit. French stations will give RS (T) and 2 figures identifying their department.

Others give usual RS (T) and QSO number. HB and DN may give 2 letter abbreviation for Canton or Province. Each QSO 3 points. A contact with FREQ is worth 10 points. Multiplier is one point for each French Department (95), Swiss Canton (22), Belgium Province (10) and each DUV country. Plus LX, VE2, OD, HH, 3B, 9U-Q-K. Final score is total QSO points times sum of multiplier from all bands. Logs to REF Traffic Manager, Lucien Aubry, FBTM, Rue Marceau 53, 91120, Palaiseau, France.

CO-WW DX 160 CONTEST

2200 GMT Jan. 23 to 1600 GMT Jan. 25.

Same rules as previous years.

HUNGARIAN CONTEST

0000 to 2400 GMT Sunday, Dec. 28, 1975. All bands 10-60 both phone and CW. Exchange RST and ITU zone number. Contacts on same continent 1 point, other continents 3 points, with HA stations 4 points. HA5 prefixes worth 5 points. Multiplier is number ITU zones worked. Logs to Budapest Radio Amateur Society, P.O. Box 2, B-1553, Budapest, Hungary by Jan. 15th, 1976.

PACIFIC DX NET PARTY

0000 to 2359 GMT Sat., Jan. 3. The International Pacific DX Net organised this to celebrate 8th birthday. All bands 10 to 80 SSB only. Work same station once each band for QSO and multiplier credit. Members give RS, NET NO. and name; others give RS, state and name. Scoring: Members, one point per contact, 2 points if it's a Net member. Others score 2 points per member worked. Total multiply QSO points by sum of stations, countries worked for final score.

Frequencies 3665, 3865, 7065, 7265, 14165, 14265, 21265, 26565.

Logs to Ed deYoung, VK4ABA, Box 98, Newstead, Qld., 4006 by March 1, 1976.

JOHN MOYLE MEMORIAL NATIONAL FIELD DAY CONTEST RULES — 1976

Amateur operators and Short Wave listeners are invited to make this contest, held in memory of the late John Moyle, a huge success.

Contestants may participate either as individuals or as part of a group. There are two Divisions in this contest. The first one is for 24 hours continuous operation and the second for any continuous period of six hours. Either period must be within the 26 hours available.

CONTEST PERIOD

From 0600 GMT, Feb. 14th, 1976 to 0600 GMT, Feb. 15th, 1976.

OBJECTS

The operators of portable field stations or mobile stations within the VK call areas will endeavour to contact other portable, mobile or fixed stations in VK, ZL and foreign call areas on all bands.

RULES

1. In each Division there are 8 sections.
 - (a) Portable field station, transmitting phone.
 - (b) Portable field station, transmitting CW.
 - (c) Portable field station, transmitting open.
 - (d) Portable field station, transmitting phone, multiple operation.
 - (e) Portable field station, transmitting, open, multiple operation.
 - (f) VHF portable field station or mobile station, transmitting.
 - (g) "Home" transmitting stations.
 - (h) Receiving portable and mobile stations.
2. In each Division, 24 or 6 hours, the operating period must be continuous.
3. Contestants must operate within the terms of their licence.
4. A portable field station must operate from a power supply which is independent of a vehicle or permanent installation.
5. No apparatus may be set up on site more than 24 hours before the contest.
6. All amateur bands may be used but cross band operation is not permitted.
7. Cross mode is permitted but note rule 21.
8. All operators of a multi operator station must be located within approximately an 800 metre diameter circle.
9. Each multi op transmitter should maintain a separate log for each band. 2 FM rig may be separate from 2 AM or SSB rig. A separate QSO number series is required for each band.
10. All multi op logs should be submitted under one call sign.
11. Only one multi op transmitter may operate on a band at a time.
12. RS or RST reports should be followed by serial numbers beginning at 001 etc.
13. **SCORING FOR PORTABLE FIELD STATIONS AND MOBILES.**
Portable field stations and mobiles, outside

NOSTALGIA RADIO EXCHANGE

Two Periods (GMT), 1900 Sat., Jan. 3 to 0500 Sun., Jan. 4; 1900 Sun., Jan. 4 to 0500 Mon., Jan. 5.

This is a new and interesting form of activity. The object is to work stations using old rigs with your own equipment. A Nostalgia Rig will be defined as any gear built since 1945, but must be at least 10 years old. Not required in the exchange, you can participate with your present equipment.

The same station may be worked on each band and mode, but not an a.m. phone below 29 MHz.

Exchange: Name, RS(T), state or DX country and transmitter type (i.e.: home brew using 807 P.A. tube and etc.)

Scoring: Multiply total number of QSOs by number of different transmitters and state and countries worked on each band. Multiply that total by the "Nostalgia Multiplier". Age of your transmitter and receiver. Double the age if it's a transceiver.

Different transmitters and receivers may be used by one station. Figure scores separately for each and combine for total score.

Frequencies: C.W. — 1610 and 70 kHz from low

entrants call area — 15 points.
Portable field stations and mobiles within entrants call area — 10 points.
Home stations outside entrants call area — 5 points.
Home stations within the entrants call area — 10 points.

14. SCORING FOR "HOME" STATIONS

Portable field stations outside entrants call area — 15 points.
Portable field stations within entrants call area — 10 points.

15. Portable field stations may contact any other portable field station twice on each band and mode (10-160) during the period of the contest provided that four hours elapse after the previous contact with that station on that band and mode.

16. Stations may be worked repeatedly on 52 MHz and above providing two hours have elapsed since the previous contact on that band and mode.

17. Operation via active repeaters or translators is not acceptable for scoring.

18. All logs shall be set out under headings of Date-time in GMT, Band, Emission, Calisign, RST sent, RST received and Points claimed. List contacts in correct sequence. There must be a front sheet to show . . . Name, address, division, Section, call sign, call signs of other operators, location, points claimed, equipment used and power supply. You must also certify that you have operated in accordance with the rules and spirit of the contest.

19. Certificates will be awarded to the highest scorer of each section of the 6 hour and 24 hour divisions. The 6 hour certificate cannot be won by the 24 hour entrants. Additional certificates will be awarded for excellent performance.

20. Entrants in sections a, b, c, d, e and f must state how power for transmitting is derived.

21. All CW-CW contacts count double. Cross mode contacts do not count double.

22. Entries must be forwarded in time to reach the Contest Manager by 21st March, 1976. The address is Federal Contest Manager, Box 67, East Melbourne, 3002.

RECEIVING SECTION

This section is open to all short wave listeners in VK call areas. Rules are as for transmitting stations but logs do not have to show report and serial number of the second station or station called. Logs must show the call sign of the portable or mobile station heard, the report and serial number sent by that station, and the call sign of the station called. Scoring is as shown in Rule 14 for home stations. A station calling CQ does not count. Portable Mobile stations, which must be listed in the left hand call sign column of your log, alone count for scoring. Stations in the right hand column may be any station contacted. A certificate will be awarded to the highest scorer of each of the 6 hour and 24 hour divisions, individual or multi operator entries. Certificates will be issued for excellent performance.

edge of each band. Phone — 3910, 7280, 14280, 21380, 28580. Novice — 3720, 7120, 21120, 28120.

Awards: Certificates to stations scoring 150,000 points or more, plus Special Citations determined by the Committee.

Send logs, comments, anecdotes, equipment description and large a.s.a.e. to: Southeast A.R.C., c/o WBAKJ, 2386 Queenston Road, Cleveland Heights, Ohio 44118.

YL-DX TO NORTH AMERICA CONTEST

CW: Jan. 14-15. Phone: Jan. 28-29. Starts: 1800 GMT Wednesday. Ends: 1800 GMT Thursday.

YLs on the North American continent, US states and Canadian provinces will be working the DX YLs (in KH6 and KL7) and vice versa.

Phone and CW are separate contests and require separate logs. The same station may be worked on each band for QSO credit, net contacts are not permitted and only QSO's with other YL's are valid.

Exchange: QSO no., RST and QTH. State for VK, province for VE and country for DX.

Scoring: One point for each QSO, DX stations count US states and VE provinces for multiplier.

"WILLIS" AIR-WOUND INDUCTANCES

Take the hard work out of Coil Winding, use — "WILLIS" AIR-WOUND INDUCTANCES

No.	Turns	Dia. per L'gth	B & W	Price	
		Inch	Inch	Inch	Equiv.
1.08	1/2	8	3	No. 3002	99c
1.16	1/2	16	3	No. 3003	99c
2.08	5/8	8	3	No. 3006	\$1.16
2.16	5/8	16	3	No. 3007	\$1.16
3.08	3/4	8	3	No. 3010	\$1.40
3.16	3/4	16	3	No. 3011	\$1.40
4.08	1	8	3	No. 3014	\$1.56
4.16	1	16	3	No. 3015	\$1.56
5.08	1 1/4	8	4	No. 3018	\$1.75
5.16	1 1/4	16	4	No. 3019	\$1.75
8.10	2	10	4	No. 3907	\$2.52

Special Antenna All-Band Tuner
Inductance
(equivalent to B. & W. No. 3907, 7 inch)

7" length, 2" dia., 10 TPI Price \$4.36
Reference: A.R.R.L. Handbook, 1961

Willis Pi-Coupler Unit — \$18.00

Stockists of Transmission Cables, Insulators and Hard Drawn Copper Antenna Wire

Write for range of Transmission Cables

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● ALL TYPES OF MOUNTINGS

Such as HC6/U (style D) . . . HC18/U (style J) . . . HC25/U (style K) . . . etc. . . Frequency range up to 140MHz on 5th overtone.



- ACCURACY
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INTERSTATE CLIENTS: Contact your Local Agent.

Let us quote you for all your Crystal requirements.

OUR EASY-TO-READ CATALOGUE IS NOW AVAILABLE.

Hobart: DILMONT INSTRUMENTS — Phone: 47-9077.

Perth: W. J. MONCRIEFF PTY. LTD., 176 Wittenoom Street, East Perth, 6000 — Phone: 25-5722.

Brisbane: FRED HOE & SONS PTY. LTD., 246 Evans Road, Salsbury North, 4107 — Phone: 47-4311.

Adelaide: ROGERS ELECTRONICS, P.O. Box 3, Modbury North, S.A., 5092 — Phone: 264-3296 — 42 6666.

hy-gain

Cush Craft

FIXED STATION ANTENNAS FOR 6 AND 2 METRES

66B 6-ELEMENT 6 METRE YAGI. Forward gain 15 dB. Boom length 24 ft. Turning radius 12'6". Boom diameter 2 inches. **\$79**

64B 4-ELEMENT 6 METRE YAGI. Forward gain 12.7 dB. Front-to-back ratio 20-25 dB. Boom length 12 ft. Turning radius 8 ft. Boom diameter 1 1/4 inches. **\$48**

215B 15-ELEMENT 2 METRE YAGI. Forward gain 17.8 dB. Front-to-back ratio 25-30 dB. Boom length 28 ft. Turning radius 14 ft. Boom diameter 1 1/2 inches. **\$69**

28 8-ELEMENT 2 METRE YAGI. Forward gain 14.5 dB. Front-to-back ratio 25-30 dB. Boom length 14 ft. Turning radius 7'6". Boom diameter 1 1/4 ins. **\$38**

A50-5 5-ELEMENT 6 METRE YAGI. Forward gain 9.5 dB. Front-to-back ratio 24 dB. Boom length 12 ft. Turning radius 7'6". Boom diameter 1 1/2 inches. **\$57**

A50-3 3-ELEMENT 6 METRE YAGI. Forward gain 7.5 dB. Front-to-back ratio 20 dB. Boom length 6 ft. Turning radius 6 ft. Boom diameter 1 1/4 ins. **\$37**

AR-6 6 METRE RINGO. Gain 3.75 dB (ret. 1/4 wave whip), 1/2 wavelength long, matched using a gamma loop. **\$36**

Prices and specifications subject to change. All prices incl. S.T. Freight extra. Allow 50 cents per \$100 for insurance (min. 50 cents).

The technical data of FT221 in the second column of our advertisement on page 33 in the December issue should read 280 (w) and not 208 (w).

bail

ELECTRONIC SERVICES

FRED BAIL VK3YS
JIM BAIL VK3ABA

60 Shannon St., Box Hill North, Vic. 3129

Ph. 89-2213

QLD. N.S.W.	MITCHELL RADIO CO. 59 Albion Road, Albion, 4010	Ph. 57 6830
STEPHEN KUHL, P.O. Box 56, Mascot, 2020	667 1650, AH 371 5445	
W. E. BRODIE, 23 Dairystreet, Seven Hills, 2147	Ph. 624 2691	
FARMERS RADIO PTY. LTD., 257 Angas St., Adelaide, 5000	Ph. 223 1268	
H. R. PRIDE, 26 Lockhart Street, Como, 6152	Ph. 60 4379	

There is a power multiplier of 1.25 if power input is 150 watts or less (300 PEP on SSB).

Final scores: QSO points X multiplier X power multiplier of entries.

Awards: Trophies to 1st place CW and phone winners, both DX and North America. Plaques to highest combined scores for both and certificates to second and third place winners.

Submit separate logs for each section and a signed declaration. They must be received before Feb. 21.

Both Newlin WA7FFG, 826 W. Prince Rd., #6, Tucson, Arizona, 85705.

ARRL INTERNATIONAL DX COMPETITION

Amateurs throughout the world are invited to participate in the annual ARRL International DX Competition.

Certificates of performance will be issued to the top phone and CW scorers in each country in each class. In addition, a handsome plaque will be awarded to the continental high-scorers (non-WVE), single operator, phone and CW in the all-band class. The top scoring multioperator entry will receive a certificate award. Single and multi transmitter entries will be listed separately. Each DX entrant that makes 1000 QSOs or more on either mode will receive a certificate.

Dates — Phone: February 7 and 8, March 6 and 7; CW: February 21 and 22, March 20 and 21.

Times: Start at 0001 GMT Saturday, ends at 2400 GMT Sunday.

Entry — Single Operator: All-band; High-band (20, 15, 10); Low-band (160, 80, 40). Enter only one.

Classes — Multi Operator: Single transmitter or Multi transmitter. All-band only.

Object — DX stations QSO as many stations in the 48 contiguous United States and Canadian call areas as possible. Repeat contacts on additional bands are permitted.

Points — Each complete contact counts 3 points. Incomplete contacts count 2 points.

Exchange — Send RS(T) and DC input power. The WVE will transmit RS(T) and his state or province.

Multipplier — On each band, your multipliers are the 48 contiguous United States, plus VO and VE1 through VE8; is 57. Your final multiplier is the sum of multipliers worked on each band. QSO points times the final multiplier equals the claimed score.

Logs — Logs must contain dates, times in GMT, bands, exchanges and points. Logs, with summary sheet and multiplier check list must be mailed no later than the last Monday in April to be eligible for QST listings and awards. Enclose your photos, comments, suggestions, etc. and mail to: ARRL, 225 Main Street, Newington, Connecticut, U.S.A. 06111.

definition in the PMG's Handbook and "Amateur Satellite Service" means a radiocommunication service using space stations on earth satellites for the same purposes as those of the amateur service.

Whenever the power of a radio transmitter, etc., is referred to, it shall be expressed in one of the following forms:

peak envelope power	(Pp)
mean power	(Pm)
carrier power	(Pc)

For different classes of emissions, the relationships under the conditions of normal operation and of no modulation are contained in Recommendations of the C.I.R., which may be used as a guide.

The PEP of a radio transmitter is set down as the average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the highest crest of the modulation envelope, taken under conditions of normal operation.

"Effective radiated power" is the power supplied to the antenna multiplied by the relative gain of the antenna in a given direction. (The product of the power of an emission as supplied to an antenna and the antenna gain in a given direction relative to an isotropic antenna).

"Telephony" is a system of telecommunication set up for the transmission of speech or, in some cases, other sounds, whereas "Television" is a system of telecommunication for the transmission of transient images of fixed or moving objects and "Facsimile" is a system of telecommunication for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form.

"A spurious emission" is defined as an emission on a frequency or frequencies which are outside the necessary band, and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions and intermodulation products, but exclude emissions in the immediate vicinity of the necessary band, which are a result of the modulation process for the transmission of information.

The "Mobile service" is a service of radio communication between mobile and land stations, or between mobile stations and a "land station" is a station in the mobile service not intended to be used while in motion. The "Fixed Service" is of course a service of radiocommunication between specified fixed points.

"Experimental Station" is a station utilising radio waves for research with a view to the development of science or technique. This definition does not include amateur stations.

There are of course many definitions relating to satellites and space communications even including "Deep Space" which is space at distances from the earth approximately equal to, or greater than, the distance between the earth and the moon.

Next time we'll have a look at nomenclature and some of the frequency allocations. The former for beginners and the latter for those who may not be quite sure of the international scene.

ARRL Headquarters are now producing a monthly news-sheet devoted to developments on WARC 1979. This will be for the use of member societies and should help greatly in co-ordinating the amateur effort.

BOOK REVIEW

SOS at Midnight (224 pages)

CQ Ghost Ship (192 pages)

DX Brings Danger (206 pages)

by Walker A. Tompkins KGATX. Published by Sagamore Books 1971, US price \$2.45 each, review copies from Magpubs.

These three stories, with a fourth (CQ Death Valley) on the way, were written for a purpose. They are teenage adventure stories, and at least as good as most of the crime dramas one may see on television. In fact the author has written stories for that medium also.

Their purpose is to introduce the world of amateur radio to the reader, assuming he or she, like most of the public at large, has only the vaguest idea of what radio amateurs are and do. The hero of all the stories is Tommy Rockford, aged 17 plus, high-school football-player and radio amateur, whose

call sign K6ATX is really that of his author. Many other amateurs (I counted more than 30) appear in the stories by name or call or both. They are all real people, friends of the author, but the parts they play may perhaps be rather different from their real occupations.

From the technical viewpoint, the facts about amateur radio are presented soundly in language the uninitiated can understand. Some aspects (MARS, phone-patches, etc.) are peculiar to the USA, but generally the potential fun and value of our spare-time way of life are worked into the stories so as to appeal to a world-wide readership. And at the end of each book, when Tommy's radiodramatic ingenuity has finally placed the drug-smugglers, sex-breakers, or swindlers in the care of the local sheriff, there is a page or so explaining how the reader too may become a radio amateur.

If you have a teenage friend or relative on your list for birthday or Christmas presents, one of these books may well not only serve that purpose, but also spark the interest of another recruit to amateur radio. You may even find entertainment in reading them yourself. I did!

VK3ABP

QSP

INTERFERENCE

"The continued swing to UHF reception of television appears at last to be resulting in a worthwhile reduction of interference complaints. Complaints generally have fallen by about 46% on both Bands 1 and 3 for an increase of about 8% on Bands 4 and 5. One can but hope that this means that more attention is being given by receiver manufacturers to making UHF TV sets reasonably immune to out-of-band interference." Pat Hawker writing in Technical Topics in Radio Communication Sept. '75. He quotes 42177 as the total new complaints received by British Post Office during 1974 of which 886 were directly ascribed to amateur stations. This is about 2% for an amateur population of about 20,000 and although no figures are published compares with about 1% of interference complaints being directly ascribed to amateur stations in Australia.

CALLING BUDDING AMATEURS

Are you about to start studying for your ticket or do you know someone who is?

Do you live where there is no local Radio Club or study group to provide the training?

If this description fits you then take advantage of the VK2 Divisions' Correspondence Course which provides L.A.O.C.P. training.

If you live in Sydney, the VK2 Division conducts a personal class. The 1976 class devotes the first term to a "Novice Course" and the remaining 2 terms bring you up to the A.O.C.P. level if you wish. For details write to—

Course Supervisor,
W.I.A. (N.S.W. Division),
14 Atchison Street,
CROWS NEST, N.S.W., 2065.

The VK2 Division also has available for loan, tape recorded Morse Training from 5 to 18 w.p.m. Available in either cassettes or reel to reel. There are also some 40 recorded lectures (reel to reel only) available for borrowing. Write (enclosing a SASE) for a list of available tapes to—

Morse Tape Supervisor
at the above address.

PROJECT AUSTRALIS

With DAVID HULL VK3ZDH

EDUCATION PROGRAMME

Australia has received a request from the ARRL for details of educational uses of the Oscar satellites in Australia. Regrettably this is one aspect that Australia just has not had the personnel to do justice to.

However we are in a position to act as a clearing house for information etc., and ARRL has promised to forward curriculum supplements and other material on request. We would be happy to supply applicants with this material in return for teacher and student reactions, photographs, newspaper clippings etc., that we can forward to the ARRL in return for their effort. We would very much appreciate hearing from educational institutions that are at present using the satellites in an educational role, or from amateurs with knowledge of these activities.

JANUARY PREDICTIONS

OSCAR 6 OSCAR 7

Date No.	Z	W	Orbit No.	Orbit	Time	Long	Date No. Mode Z +W			
							No.	Mode	Z	+W
1	14581	01.44	77	1	5153	A 00.12	76			
3	14705	01.39	76	2	5165	B 01.06	68			
4	14718	01.39	61	3	5178	A 00.05	51			
5	14731	01.34	74	4	5191	B 00.59	65			
8	14768	02.29	58	5	5204	A 01.53	78			
10	14793	02.34	57	6	5216	B 00.53	63			
11	14803	01.19	71	7	5229	A 01.47	76			
12	14818	01.18	55	8	5241	B 01.46	61			
15	14826	01.18	69	9	5254	A 01.47	75			
17	14881	01.06	67	10	5260	B 00.40	60			
18	14893	00.03	12	11	5279	A 01.34	73			
19	14906	00.58	65	12	5291	B 00.34	58			
22	14944	01.48	78	13	5304	A 01.28	72			
24	14969	01.43	76	14	5316	B 02.27	56			
25	14981	01.43	62	15	5329	A 01.21	70			
26	14994	01.37	75	16	5341	B 00.21	55			
29	15031	00.32	59	17	5354	A 00.15	65			
31	15056	00.27	57	18	5366	B 00.14	53			
			19	5379	A 01.09	67				
			20	5391	B 00.08	52				
			21	5404	A 01.02	65				
			22	5416	B 00.02	50				
			23	5429	A 00.58	64				
			24	5442	B 01.50	77				
			25	5454	A 00.50	62				
			26	5467	B 01.44	76				
			27	5479	A 00.44	60				
			28	5492	B 01.37	74				
			29	5504	A 00.37	59				
			30	5517	B 01.31	72				
			31	5529	A 00.30	57				

FEBRUARY PREDICTIONS

1	15069	02.22	71	1	5542	B 01.25	71
2	15081	02.22	56	2	5554	A 00.24	56
5	15119	01.12	69	3	5567	B 01.18	69
7	15144	01.06	67	4	5579	A 00.18	54
			5	5592	B 01.12	68	
			6	5604	A 00.11	52	

BEACONS

According to a report in RSGB's Radio Communication for Sept. '75 the RSGB's first 10 GHz beacon was established at a permanent site on the Isle of Wight on 3-4-1975. It operates continuously on 10.100 GHz with an omnidirectional aerial and an 80W ERP.

ATTENTION FT101 OWNERS

At last a distortion-free RF Clipper. Fits in minutes and really works. Yaesu SSB Filter fitted. Only for FT101. Gives up to 6 times or more effective talk power gain plus extra distortion-free gain. Will not be confused with audio type distortion producing clippers, or compressors.

Price: £45 sterling, air post paid.

Send for details:

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Hamads

- Eight lines free to all WIA members. \$9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Commercial advertising is excluded.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTH means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

QBS/300 (4/125) Phillips Tetrodes (two), one used, one slightly used, \$12 both. OTAGO Branch Solid State SSB Exciter, complete and professionally assembled, plus "Break-in" articles. \$50.00. R. W. Rogers VK3BNG, 16 Werrett Ave., Werribee, 3030.

FT/FP200, excellent condition, complete 10 metre coverage, complete set of spare valves, fan fitted, microphone, cables and manual, \$350.00. VK3AYP, Ph. (03) 465 3581.

Radio Clubs — I will donate large collection of equipment and components if you arrange pick-up. Items included: 90-10m AM Tx CW HD PS, 80m AM mobile transceiver CW, transistor, DC/DC conv., SCR-522 receiver, part modified CW, spare Rx, 3-band HF Rx, assortments valves, capacitors, transformers, relays, MD vibrators etc. A. E. Tobin VK3ATT, QTH. Ph. (03) 876 1404.

Collins 2000 with noise blanker and DC power supply, mint condition, manuals and crystals, \$850. Ex VK2VN. Mrs. M. H. Meyers, 109 Springfield Rd., Killara, NSW, 2071. Ph. (02) 498 2956.

FT/P200, 1 year old, all 10 MHz xtal and English manuals; \$300. M. Stubbs-Race VK2ASR, 35 Dress-circle Rd., Avalon, NSW 2107. Ph. (02) 918 8163.

Deceased amateur's estate, Yaesu FT200 2m FM, SSB, CW, Transceiver, 3 months old, \$400.00. FT200 with AC and DC PSUs, used only 2 hours, \$400.00. Geloso G4/214 comm. Rx, with speaker, in good order, \$50.00. 1/4 wave 2m whip with magnetic base, \$17.50. Grundig GDO, AC model, \$25.00. 50 ft. Hills Telemaxx u/w, guy, \$20.00. Contact VK3PR, QTH. Ph. (056) 62 2711.

Drake Rx Model R-4C and a Drake Rx Model R-2C, mint condition, clean, recent productions, late serial Nos. etc. Keeth Hatch, Ph. (03) 57 5922. Heathkit S8401/S8501 HF CW/SSB Transceiver, with SB160 Monitor Scope, S603 matching speaker and handbook for all units. Features USB/LSB any band 80-10m, Break-in CW, split freq. available, CW and RTTY filters in Rx, 2 tone osc. in mono, scope, 5116s finals in Tx, linear VOX, etc., \$550 or nearest offer. VK2BIP, QTH.

Yates FT DX 401 Transceiver, SSB 500 watts, CW 450 watts, with matching speaker, microphone and manual. Mint condition, new 1974, little used, mainly Rx. Moving GTH, must sell, best offer. R. Barnes, 1/21 Baden St., Coogee, NSW 2024.

Yates FT DX 401 Transceiver, excellent condn., orig. plug-in mic, manual, connecting plugs, limited use, modified switchable CW/SSB filter in CW mode. \$420, buyer must collect. VK2BKF, QTH. Ph. (02) 888 2814. AH.

Drake TR-2 Trans., square, finals, manual, complete, original box, \$300.00. VK107 Supermatch, \$140. DX Engineering Speech Processor \$100 or \$450 the lot. Lafayette Comm. Rx, \$50. Mini SWR Meter, \$10. Garrard 1000 R/Player, co-ax, tubes, TV chassis, Speakers, Zeiss 8 x 40 Naval Binoculars, \$50. BING & GRONDEL Opera Plates, \$100 ea. VK2ASH, QTH. Ph. (02) 270 5184.

Compl. Serv. Manual for Rx R5222 and AR88 with comp. details for \$15 each. Com., Res. SX-100, 3.8 to 30 MHz in 11 xtal. contr. \$100 or \$50 kHz esch. sensitivity 0.4 microV/10 dB S/N, etc. Brand new box with matching speaker and manual, for \$315. PO Box 141, St. Kilda West, 3182, Vic. Ph. (03) 599 2400.

Hyspin 18V All Band Portable Antenna — for Field days, camping trips or home use, \$27. Alan VK3ASL, Ph. (03) 599 9467.

Silent Keys

It is with deep regret that we record the passing of—

MR. R. G. THOMAS

VK3NU

MR. J. R. G. HARRIS

VK3ALX

HORACE LAPTHORNE 1899/1975

It is with sincere regret that the passing of a truly faithful pioneer of Radio in Australia is recorded. Horrie Lapthorne VK2HML/T suffered a heart attack at 1 am on 28th October, 1975. He is survived by his wife Marion, known to many as Min, and three married children Fay, Joy and a son Vic.

Horrie began his exploits in Radio way back in the early 1900 era and achieved many firsts. Most notably he pioneered aeronautical communication for the flying doctor. He was probably the first and only VK to work England on 6 metres (one way to UK) before World War Two. His notes show the contact as being approximately 6 metres and verification by mail.

Horrie was born in 1899 and lived in Sydney for the greater part of his life. In later years he moved to Northsville where he encouraged the local ham populous to try their hand at 70 cm ATV. As a result the central coast can boast perhaps the highest concentration of ATV activity in Australia.

Even up to the time of Horrie's death he was up with the state of the art. Only two weeks before he proudly demonstrated his 625 line digital IC Sync pulse generator.

Horrie was and shall continue in the hearts of many Radio Amateurs in Australia and abroad as a source of inspiration and kindle the pioneering spirit that enthuses the true Radio Amateur.

All Radio Amateurs who knew Horrie pass on their deepest sympathy to his family at this time of sorrow and loss.

VICTOR G. BARKER VK2ZVV/T.

KW2000E 160/10m Transceiver, only few weeks old, \$400. Marconi Gen. Cov. Receiver, 100 kHz/30 MHz, original and unmodified, \$90. Heath HZ23E power supply, \$35. Asahi SWR/power meter, \$20. Icom IC21A with 12 channels, as new, \$300. VK3DM, QTH. Ph. (03) 560 9215.

Exchange — Cintel 388 AF Gen/Counter (currently selling \$250 S/H) for 3" or 5" scope OR Gen. Cov. Rx OR Antenna Rotator. No cash diff. either way. all offers answered. David VK5HP, 17 Brodie Cres., Christies Beach, 5165.

WANTED

Gen. Cov. Rx (4 in Number), bandspread amateur bands for members South Coast Radio Amateurs. Cash to \$100 each. Reply per David VK5HP, 17 Brodie Crescent, Christies Beach, 5165.

Replacement Film Scale, Part Number ZA-4011, for Army R210 receiver dial. VK2NUN, QTH but Post Code 2070. Ph. (02) 46 4358.

Small CW HF Transmitter such as Heathkit DX40 for High School Student sweating on Novice Exam. VK2AAB, QTH. Ph. (02) 487 1428.

14AVQ in serviceable order. VK3AKU, QTH. Ph. (03) 599 8892.

161-ARNE Radio Compass Control and Mounting Racks, etc. — I would be delighted to hear from anyone who has, or knows of, a source. Lionel L. Sharp VK4NLS, QTH. Ph. (07) 59 1945.

MR20A or MR10C High Band. Prefer not converted. VK2BDT, QTH.



Yaesu De-luxe Receiver FR-101D



FEATURES

- Total coverage capability: 160-2m plus major short wave broadcast bands
- Provision for all mode reception: SSB, CW, AM, RTTY, and FM
- Complete transceive capability with all 101 series equipment
- Reliable, plug-in circuit boards for service simplicity
- Selectable fast or slow AGC

TECHNICAL DATA

Frequency Range: 160m 1.8-2.0 MHz, 80m 3.5-4.0 MHz, 60m 4.5-5.0 MHz, 40m 7.0-7.5 MHz, 31m 9.5-10.0 MHz, 25m 11.5-12.0 MHz, 20m 14.0-14.5 MHz, 19m 15.0-15.5 MHz, 16m 17.5-18.0 MHz, 15m 21.0-21.5 MHz, 13m 21.5-22.0 MHz, 11m 25.5-26 MHz, CB 27.0-27.5 MHz, 10A 28.0-28.5 MHz, 10B 28.5-29.0 MHz, 10C 29.0-29.5 MHz, 10D 29.5-30.0 MHz, VHF6m 50.0-52.0 MHz and 52.0-54.0 MHz, VHF2m 144-146 MHz and 146-148 MHz and additional four bands of 500 kHz segment within 4.0-4.5 MHz, 5.0-5.2 MHz, 7.5-9.0 MHz and 22.0-27.0 MHz (optional extra).

Mode: Selectable USB, LSB, CW, AM, FM or RTTY.

Frequency Stability: Within 100 Hz during any 30 minute period after warm-up. Not more than 100 Hz with 10% line voltage variation.

Calibration Accuracy: 1 kHz maximum after 100 kHz calibration.

Backlash: Not more than 50 Hz.

Antenna Impedance: 50 ohm unbalanced nominal.

Circuitry: 20 Transistors, 12 FET, 4 Integrated Circuits and 33 Diodes.

Power Requirement: 100/110/117/200/220/234V AC, 50/60 Hz, or 13.5V DC nominal.

Price: \$723. FR-101D/Digital (as above but with Digital readout) \$889.

All prices include sales tax. Freight extra. Price and Specifications subject to change.

Coming soon . . . a general coverage SWL communication Receiver, .5 to 30 MHz, low cost. Details later.
AUSTRALIAN AGENT:

SOLID STATE RECEIVER with Total Spectrum Coverage 160-2m plus provision for major short wave broadcast bands

Advanced communications technology now brings you a total coverage, solid-state communications receiver. The FR-101D has the flexibility that even the most demanding amateur desires — with provision for all mode reception on twenty-one 500 kHz amateur and shortwave bands from 160-2m. This versatile receiver is capable of transceive VFO control with the matching FL-101 transmitter or FT-101B transceiver. New, solid-state technology, with features such as a double-balanced mixer, offer unparalleled performance and rejection of cross-modulation and intermodulation interference. Build your total performance base station with the addition of the FR-101D communications receiver.

- Built-in, threshold adjustable, noise blanker
- Better than 1 kHz readout on all bands
- Fixed channel, crystal control operation
- ±5 kHz clarifier
- Built-in calibrator 25 or 100 kHz (selectable)
- Indicator lights for internal VFO and clarifier operation
- Built-in AC power supply and 12V DC operation.

Sensitivity: 0.3 uV for 10 dB Noise plus Signal to Noise Ratio on 14 MHz for SSB and CW. 1 uV for AM on 14 MHz, 12 dB SINAD for FM reception.

Selectivity: 2.4 kHz nominal bandwidth at 6 dB down, 4.0 kHz at 60 dB down on SSB, CW and RTTY. 600 Hz nominal bandwidth at 6 dB down, 1.5 kHz at 60 dB down with CW filter. 6.0 kHz nominal bandwidth at 6 dB down, 12 kHz at 60 dB down with AM filter. 20 kHz nominal bandwidth at 6 dB down, 45 kHz at 60 dB down with FM filter.

Harmonic and Other Spurious Response: Image Rejection better than 60 dB. Internal Spurious Signal below 1 uV equivalent to antenna input.

Automatic Gain Control: AGC threshold nominal 1 uV. Selectable AGC time constant, fast or slow. Fast attack time 3 milli-second and slow attack time 4 milli-second. Fast release time 0.5 second and slow release time 2 seconds.

Audio Noise Level: Not less than 40 dB below 1 watt.

Audio Output: 2 Watts at 4 ohm impedance.

Audio Distortion: Less than 10% at 2 Watts output.

Size: 340(W) x 153(H) x 285 (D) mm.

Weight: 9 kg.



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SIDEBAND ELECTRONICS SALES and IMPORTS A Happy New Year - 1976 to All!! VK2AVA

All items on my regular monthly list of goodies as in the last December 1975 issue are still available at the prices quoted, subject to price changes overseas and/or currency ratio changes.

Add the following additional items:



KYOKUTO synthesized 144-149 MHz FM 10 Watt transceivers model FM-144-10-SXR-11 now in stock for only	\$300.00
DRAKE 1 KW Low pass filters model TV-1000-LP	\$27.00
DRAKE W-4 RF Wattmeter	\$60.00
S.W.R. Meters, single meter type	\$14.00

All prices quoted are net SPRINGWOOD, N.S.W. on a cash with order basis, sales tax included in all cases, but subject to changes without prior notice. No terms nor credit nor C.O.D. facilities, only cash and carry, no exceptions. All-risk insurance available for 50 cents per \$100 value, minimum insurance charge 50 cents. Allow for freight, postage or carriage, excess will be promptly refunded.
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